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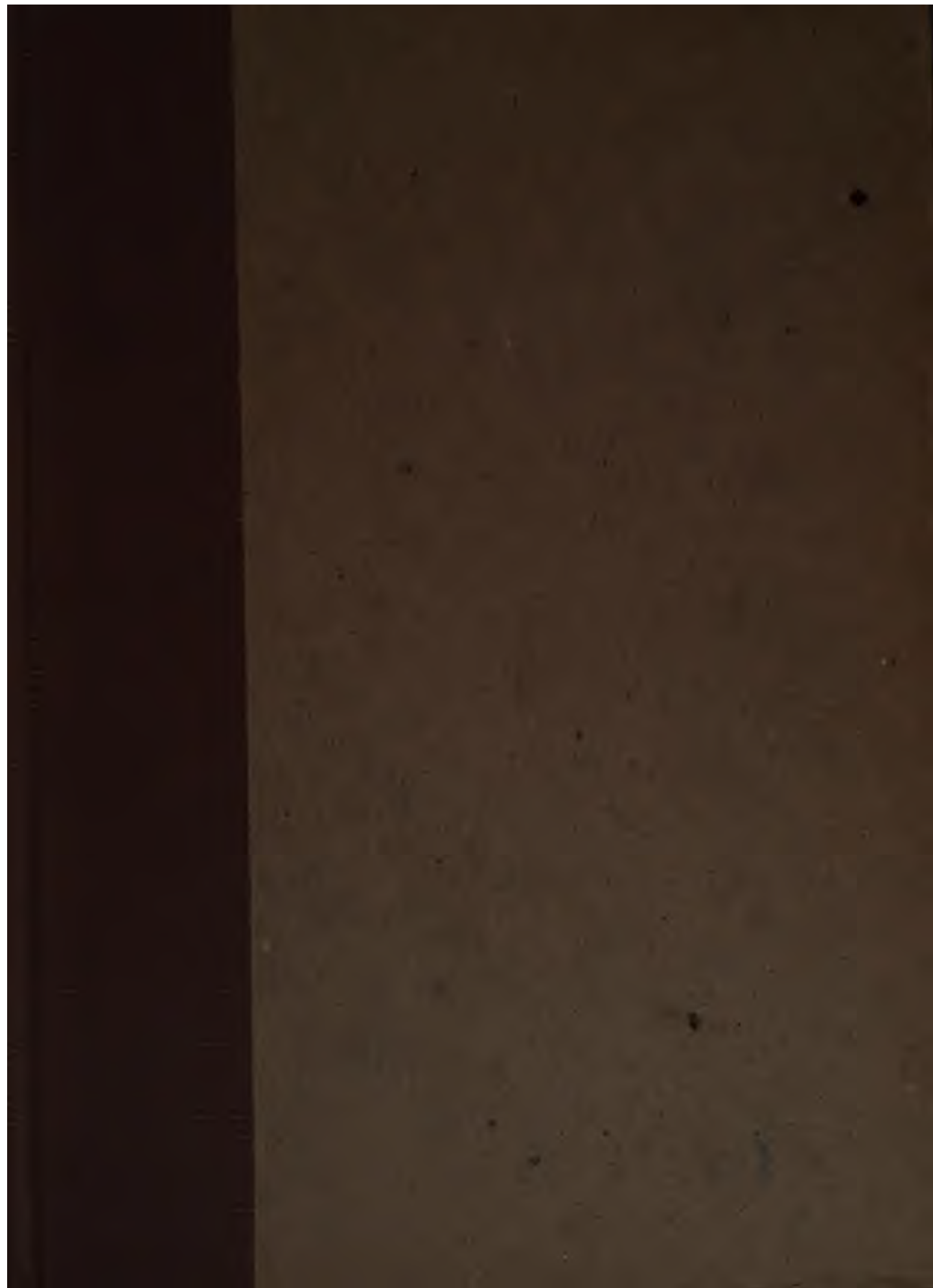
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THE COTTAGE GARDENER:

A
PRACTICAL GUIDE
IN EVERY DEPARTMENT OF HORTICULTURE
AND
RURAL AND DOMESTIC ECONOMY.

CONDUCTED BY GEORGE W. JOHNSON, ESQ.

EDITOR OF THE "GARDENER'S ALMANACK," ETC.

THE FRUIT AND FORCING-GARDEN, by Mr. R. Errington, Gardener to Sir P. Egerton, Bart., Oulton Park.

THE KITCHEN-GARDEN, by Mr. J. Robson, Gardener to Earl Cornwallis; and Mr. T. Weaver, Gardener to the Warden of Winchester College.

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VEGETABLE AND OTHER COOKERY, by a Lady.

THE AVIARY, by a Naturalist and Bird Fancier.

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TO OUR READERS.

ANOTHER six months have elapsed; another volume is completed; and we have again gratefully to address you. It is vain to inquire for fresh phrases in which to express our gratitude; nor are we sedulous to do so, for we have lived long enough to know that there is more of heartiness in "Thank you," "How d'ye do," and "Good bye," than in three oriental orations of gratitude, greeting, and farewell.

Let "Thank you," then, be our brief but genuine address to all,—to our many "old subscribers," who aided us from our earliest venture forth to teach the young idea how to dig and prune, and to our as-many "new subscribers," who needlessly apologize so often for venturing to ask from us information. Even to our competitors we say "Thank you;" for whilst by their appearance they have warned us to be vigilant, so by their failure have they taught us what to avoid.

To our contributors more especially do we say "Thank you;" for, without their aid, we should have never earned this praise in a letter now before us—"THE COTTAGE GARDENER is the best as well as cheapest of gardening publications. I never receive a number that does not instruct and gratify me."

Combined with gratitude for the past, is assured hope for the future. We remember, when running across the Trade wind, the customary command of our captain was to the helmsman—"Keep her up." Our order is the same, and we know it will be obeyed. The helmsman and officers of our craft all agree that there is no difficulty in "keeping her up;" they tell us, moreover, that her freight will be quite as valuable next voyage as heretofore; that the wind is fair; and that our competitors think that she has the remarkable property of "raising the wind" each voyage. We believe all this to be true, and we know of no reason, therefore, why we may not add, with humble confidence, those words of the old ship's charter—"God give her a prosperous voyage."

JUN 10 '43 L. A.

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WEEKLY CALENDAR.

M D	W D	OCTOBER 2-8, 1861.	WEATHER NEAR LONDON IN 1860.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
2	Tu	Walnut-leaves fall.	30.870—30.799	58—43	N.	02	3 a. 5	36 a. 5	10 33	3	10 31	275
3	F	Jack Snipe seen.	30.877—30.874	56—44	E.	02	5	34	11 31	8	10 49	276
4	S	Swallows last seen.	30.886—30.798	60—33	S.W.	—	7	31	morn.	9	1 8	277
5	SUN	16 SUNDAY AFTER TRINITY.	30.771—30.734	61—36	W.	—	8	30	0 34	10	1 26	278
6	M	Buntings flock.	30.746—30.427	50—44	S.W.	15	10	27	1 38	11	1 44	279
7	Tu	Wheat sowing.	30.644—30.377	50—42	S.W.	—	12	25	2 43	12	2 1	280
8	W	Cherry-leaves fall.	30.770—30.557	60—31	S.W.	—	13	22	3 49	13	12 18	281

"REASON hath deceived me so many times, that I will trust reason no more, unless the point in question be confirmed and made manifest by experience—without which no knowledge in husbandry is perfect; for experience admitteth no imposture." So wrote one of the most intelligent men of the 17th century, yet that man died from absolute want in the streets of London. He was GABRIEL PLATTES; and this almost only fragment of his biography we find thus recorded.

In the British Museum is a volume, published in 1639, entitled, *A Discovery of Subterranean Treasure*, written by Gabriel Plattes; and a contemporary of the author has written on a fly-leaf of that volume, "The author of this book died of meer want, in the year 1644, at London. Mr. Hartlib hath many of his best papers and notes, which are worth the getting; for Mr. Samuel Hartlib told me he was a rare man for feats of husbandry, chemistry, &c." In other words, Plattes was an alchemist as well as a cultivator of the soil; but he was no blind groping in the crucible. Yet alchemy was one of the prevailing delusions of his age, influencing all classes, and so prevalent as to call forth Ben Jonson's well-known satire, "The Alchemist." Even such a contemporary of Plattes as Evelyn saw no absurdity in the pursuit, for he tells us in 1705, "I went to see Dr. Dickinson, the famous chemist. We had a long conversation about the philosopher's elixir, which he believed attainable, and had seen projection himself by one who went under the name of Mundanus, who sometimes came among the adepts, but was unknown as to his country or abode; of this the Doctor has written a treatise in Latin full of very astonishing relations. He is a very learned person, formerly a Fellow of St. John's College, Oxford, in which city he practised physic." It seems extraordinary that no one seems to have asked, "If these men can make gold, why are they all so miserably poor?" In the work of Plattes, of which we have given the title, there are some extraordinary recipes, but it is not consonant with our purpose to enter into its metallurgical tests and researches, although one chapter has such a tempting title as "How true and perfect gold may be made by art;" and we are the less inclined to do so, because we perceive that the crucible, like California, had one result in common; for Plattes says, "If any one doubt the truth of alchemy, he may be satisfied by this trial; but, instead of gain, he shall pay for his learning, by going away with loss."

In the same year, 1639, in his *Discovery of infinite treasure hidden since the World's beginning, whereunto all men are friendly invited to be sharers with the discoverer*, Plattes begins with this most true apothegm—an apothegm even more applicable to the 19th century than to that in which he wrote—"There is no approved medicine but this in an over-peopled commonwealth—to wit, good improvements of the earth;" and we recommend it to the consideration of both the protectionists and free-traders of the present day. We have abundant evidence in this work to sustain Mr. Hartlib's declaration, that Plattes was "a rare man in husbandry;" for although there is in it much of surplussage and inflated eloquence, there are also intermingled many such truthful passages as this—"When a planter setteth his small trees, at the first, let him ram down the earth solid below, and lighter towards the surface, that so the roots may spread through all the points of the compass, and may not point downwards towards the barren earth, but spread in the rich mould." His views as to the mixture of soils, irrigation, and the preservation of the drainage from dunghills, are equally sound. "I have seen," he says, "much oversight committed by many husbandmen, in letting out the putrid and coloured water from their moats and dunghill pools; whereas, all the water that was high-coloured might have been improved in such frugal manner, by a little industry, that it would have produced such an increase of barley as would have made as much good drink for the husbandman's provision as the coloured water which was lost."

In the May of 1664, the year of his death, he induced Mr. Hartlib to publish for him—for he appears to have had neither funds nor credit—*The Profitable Intelligencer*, which is no more than an advertisement of eight pages, proposing to publish a larger work, entitled, *The Treasure*

House of Nature unlocked, and set wide open to the world. He says, "I intend, as soon as it shall be printed, that in Westminster Hall, and elsewhere, at certain signs then to be set up, the said book shall be sold for five shillings, or lent for two-pence per week, to every one that shall leave the money, or put in security to return it to the owner." Westminster Hall was no extraordinary place in which to establish this first suggestion of a circulating library, for in those days seedsmen, booksellers, and others, had stalls in that Hall for vending their wares. Plattes was evidently a practical man, for we have seen what he says about experience as opposed to mere reasoning; and Walter Blith, in the preface to his *English Improver*, speaks of Plattes' "corn-setting engine," which he applauds, and which was evidently the embryo idea of our modern drills.

Yet of such a man no memorials exist. All that we gather is that he probably began his observations in the latter end of Queen Elizabeth's reign, continued them through the reigns of James and Charles the 1st, as well as during the first three years of the Commonwealth. The Rev. Walter Harte, who must have conversed with those who had seen Plattes, says of him:—

"As great a genius as this writer was, the public allowed him to drop down dead in London streets with hunger only; nor had he a shirt upon his back when he died. He bequeathed his papers to S. Hartlib: Whom a contemporary author addresses in this manner: 'None (but yourself, who want not an enlarged heart, but a fuller hand to supply the world's defects) being found, with some few others, to administer any relief to a man of so great merit.' Letter to Hartlib from Flinders, 1680.

"Another friend of Hartlib's gives Plattes the following character: 'Certainly that man had as excellent a genius in agriculture as any that ever lived in this nation before him, and was the most faithful seeker of his ungrateful country's good. I never think of the great judgment, pure zeal, and faithful intentions of that man, and withal of his strange sufferings and manner of death, but am struck with amazement that such a man should be suffered to fall down dead in the streets for want of food, whose studies tended to no less than providing and preserving food for whole nations, and that too as with much skill and industry, so without pride or arrogance towards God or man.' C. D. in a Letter to Hartlib, 1653. Legacy, p. 183, 184.—Hartlib, as far as can be learnt, published but few posthumous papers of Gabriel Plattes; and indeed an author, so extremely poor as this unfortunate person was, would in all probability have sold his writings to the booksellers, had they been so far finished as to deserve publication. The pieces already published are these which follow: *Practical Husbandry improved*, or, *A Discovery of infinite Treasure*, 4^{to}, containing 120 pages, 1656. *A Discovery of subterranean Treasure*, 4^{to}, 1638. About three sheets. *Mercurius Latifrons*, 4^{to}, 1644. Twelve pages. *Observations and Improvements in Husbandry, accompanied with twenty Experiments*, imparted to S. Hartlib by Gab. Plattes. 32 pages, 4^{to}, 1653.—This author had a bold adventurous cast of mind, and seems to have preferred the faulty sublime, in matters of invention, to the faultless mediocrity. As to his MS. entitled *Art's Mistress* containing a series of observations and experiments in agriculture for fifty years, and in all probability the most valuable in matter, as well as most considerable in size, of all his writing, we have spoken. In a letter to Hartlib, May 14, 1644, he mentions a work of his, called *The Treasure-house of Nature unlocked, and set wide open to the World, &c.* Whether this performance was ever printed is more than I know, or whether it be not the tract first mentioned in this list, which I am partly inclined to believe."

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 62.8° and 44.1° respectively. The greatest heat, 80°, occurred on the 5th, in 1834, and the lowest cold, 29°, on the 3rd, in 1836. During the period, 83 days were fine, and on 85 rain fell.

WE will now conclude our comments on the gardening implements at the World's Exhibition:—

219.—SMITH'S ENAMELLED GARDEN LABELS

Are made of iron and bronze, with a frame or space at the top for the enamel, which, being white, shows the ink or paint, which may be used for writing the name of the plant or tree very clearly, and the enamel can be easily cleaned. The labels might be made neater, and of more tasteful designs for conservatories. They will be found both durable, and of more utility than most of the labels in use in gardens at the present time.

SMITH'S HYACINTH GLASS AND GLASS SUPPORTER.—

This glass is fitted with a glass support for steadying the flowers, and is fixed on the top of the glass by means of a small zinc tube, with a piece of zinc from the side bent so as to fit over the edge of the vase, the support passing through the tube. The contrivance is very simple, but the design is not good, being the same as the old-fashioned hyacinth glass.

THE STRAWBERRY-TILE, exhibited also by Smith, will be expensive, and the utility of such-like things is much questioned. For a wet season, they may be useful in

keeping the fruit from the ground; but in dry, hot weather, the fruit is liable to get baked on one side before the other is ripe, and for general purposes they are useless.

253.—FLEMING'S MACHINE FOR DESTROYING WEEDS, AND MOSS, &c., ON GRAVEL WALKS.

This is a boiler on three wheels, made of malleable iron, with a fire-box, door, and ash-box at one end, with a handle at the other, to draw it along; it is also fitted with a valve and perforated pipe, for distributing the boiling solution. The water is put into the boiler with two pounds of salt for every gallon of water, and it holds about thirty gallons; the fire is then lighted, and when the water is boiling the machine is moved on, and the valve opened. The breadth the water is spread is about three feet, and it will go over from eighty to eighty-five square yards at each time the machine is emptied of its contents. The boiler is then filled again, and so the operation goes on. The walks must be dry when the solution is used, and care must be taken to keep it away from box or turf edgings, as it will kill either of them as quickly as the weeds.

This is, no doubt, an excellent method for eradicating weeds. Salt has been often used, laid on by the hand, for killing weeds, but young plants from the uninjured seed soon make their appearance thicker than before; but when the solution is used boiling, it destroys the seeds as well as weeds, and so prevents a crop from appearing for a longer time, while, if the walks are rolled after the operation, before getting too dry, it consolidates the surface and makes it smooth and comfortable to walk on. Our reporter adds, that he thinks this machine very useful where there is a large extent of gravel to clean, and particularly where the walks are shaded and get covered with moss.

262.—SEAL'S SCYTHE STONES

Appear to be made of stone, with a good grit for sharpening scythes; they are both in a rough state, and polished ready for using.

269 B.—SANDER'S GARDEN SPADES, DRAINING TOOLS, AND SHOVELS.

The spades exhibited are generally good, though in some of them we remarked that the iron strap from the blade did not come well up the handle, which is a great fault, as the handle is thereby less strong, and more likely to break with heavy work.

Our reporter likes the spades exhibited at Stand **259 A**, by WINTON of BIRMINGHAM. "These are made of a solid piece of cast steel, without joint or weld, and quite elastic;" the spades are very light, but quite strong enough for any garden purposes. The handle is fixed in a different manner from the old method of the iron straps sheathing the handle; in these there is a slit cut out of the handle, from front to back, into which a plate of the steel from the spade is secured by iron pins passing from side to side of the handle. Our reporter adds, "I have not had experience with this method of fasten-

ing handles, but it appears to me that there will be more pressure on the wood of the handle, without having the sheath of iron to strengthen it; with this exception, the spades are the best I have seen. The *Forks*, for different purposes, in this stand, are light and well-made."

160.—CRUMP'S FIRE AND GARDEN ENGINE.

This engine is mounted on a loose iron frame, with two wheels, an iron foot and handle, and can be removed at pleasure. The tub is made of wood; and one of the engines exhibited has two pumps, with an air chamber in the exit-pipe, so that a continuous stream of water can be discharged, at the rate of 18 gallons per minute, and to a distance of 50 or 60 feet. There is a woven hose and branch-pipe attached to it; it is fitted with union-joints, and is a good strong engine, but rather heavy. There is also a smaller engine exhibited with one pump.

43.—STARKEY'S TELESCOPIC LADDER.

These ladders slide out of each other. The method is, a notched plate of iron is fitted to the back of the sliding series of ladders, and slides in a groove in front of the steps. Each ladder has a strong spring-catch at the top, and as the ladders are elevated, the notches in the plates keep each at any required height attained by the series of four ladders. This is a useful contrivance for many purposes, and is held together very firmly.

GARDENING GOSSIP.

The *Exhibition at Ashford* set the Kentish growers upon the move, and there is every prospect that the next year's show will be upon a grand scale. This season there was a far greater display than could have been expected, and the public were not wanting in their patronage. Not less than three thousand persons, including the rank and fashion of the county, were admitted to the ground, and the splendid band of the Royal Artillery, with the Maidstone band, alternately performed. The fruit was better than we ever saw at a provincial show before. Mr. Epps's nursery grounds, adjoining the station, were admirably adapted for a display of the kind, and his noble plants did much for the occasion.

The *Maidstone Horticultural Society* was well supported in the last exhibition for the season. Many stands of Dahlias and Roses, Verbenas and Hollyhocks, were shown in fine condition, and floriculture appears highly patronized in that vicinity. Cottagers' productions, both here and at Ashford, make a striking feature; and we learn, with great satisfaction, that the effect on the morals and condition of the humble classes is excellent.

Hereford Horticultural Society has held three shows with every possible advantage of earnest patronage, fine weather, and an improving taste. There was a marked improvement in the last show as compared with the others. It would have done any body good to see the beautiful productions of the cottagers, whose useful vegetables for quality almost put the professional gar-

deners to the blush, and whose enthusiasm seemed boundless. This series of shows for 1851 was a revival of exhibitions after a considerable lapse of time, and enough was done to shew that the Society will be second to none among those of the provincial cities.

The uncertainty of last year's *Dahlias* has not been so much complained of as the retrograde movement in quality, coarseness, and sunk centres; and had it not been that some of the growers gave prizes for the best of last year's flowers let out by them, very little would have been seen of them. The most beautiful flower of the season was *Barmaid*, let out by Turner. The most perfect and certain was *The King*, let out by Morgan. *Nil desperandum* was the most showy, but it has the great fault which would spoil the best flower in all other respects, the petals do not meet as the flower naturally grows, and all the dressing that can be given will not wholly remedy the defect. *Mrs. Hansard* was the best fancy; but if we get one of the same colour without the indentation at the ends of the petals, this must give way another year. *Admiral* has been useful, but cannot be compared with *Fearless*. E. Y.

NEW PLANTS. THEIR PORTRAITS AND BIOGRAPHIES.



DENSE-FLOWERED WALLICH PALM (*Wallichia densiflora*).—*Botanical Magazine*, t. 4584.—Whether we regard the stately habit of the *Wallichia caryotoides*, the palm on which this genus was founded by Dr. Roxburgh, the great beauty of the *Wallichia spectabilis*, or the elegance of this comparatively little palm before us, the subject of our present biography, we believe few will dispute the taste which suggested the genus to commemorate the name and labours of Dr. Nathaniel Wallich, late Superintendent of the Botanic Garden at Calcutta, and the more so, when we remember that the author of it, Dr. Roxburgh, was his immediate predecessor in the directorship of the same garden. We submit this example of disinterested kindness to the serious consideration of gardeners; for how often do we find the

very contrary spirit exhibited by some of them towards both their predecessors and successors in the cares of the garden; but this should not be—charity and goodwill should prevail over all our relations and actions in life. Several other botanists of eminence have showed their desire to compliment the great demonstrator of Indian botany “by a like compliment,” and the synonyms which have accumulated to the genus *Wallichia* in consequence, have been the source of error on the part of Endlicher and Lindley in their enumeration of genera. We, therefore, hail, with great pleasure, the following extrication of this botanical web by the indefatigable researches of Sir W. Hooker:—

“In as few words as we can,” he begins, “we must show the right that Roxburgh’s plant has to the name *Wallichia*, in preference to the *Wallichias* of other botanists, who have delighted to honour our friend by a like compliment. Though the Palm had been long thus named by Dr. Roxburgh, it was not published till the appearance of the third volume of the ‘Plants of Coromandel,’ under the direction of Robert Brown, Esq., in 1821. In 1824, Dr. Hamilton published this identical Palm, under the name of *Harina*, in his Commentary on the *Hortus Amboinensis*, inserted in the fifth volume of the ‘Transactions of the Wernerian Society of Natural History.’” Sir W. Hooker also shows a long list of *Wallichias* by other authors, and traces them to the dates of their published origin, and they are shown to have been of later dates; so that now, at last, this Palm is established on its true foundation, and, as Sir W. Hooker says, “is well suited to commemorate Dr. Wallich’s labours in the field of science. His extended knowledge, and his splendid works on Indian botany, his liberal contributions to Kew, and to every celebrated garden in Europe and the colonies, and his generous and encouraging bearing to every student of plants, justly entitle him to a name among the “princes of the vegetable kingdom.”

Wallichia densiflora is an elegant stemless Palm, a native of Assam, and of forests which skirt the base of the Eastern Himalaya from Kamaon, at an elevation of some two thousand feet above the level of the sea, where it was discovered by Dr. Thomson, and from whence it was introduced to the collection at Kew some years since. It will be found a fit associate with Cycads, as *Dion*, *Zamia*, and such palm-like plants, to represent the noble family of Palms on a minor scale. Besides the beauty of its spreading frond-like leaves, it is very handsome while in fruit, and being a Monococious plant, it carries the male and female organs of reproduction on different stems (spadix) on the same plant. These spadices, or flower-stems, issue from among a central tuft of coarse fibres. The male stem is first hid in a large imbricated sheath, called a spathe, which is of a dark purple colour streaked with yellow; hence arise the male flowers in dense clusters, and nearly white. The female is a compound spike, with violet-coloured fruit or ovaries. This and all the allied tribes delight in strong turfy loam, and their large spreading roots suck up large quantities of rich water when the plants are in good health and growing in strong moist heat. Palms are now arranged in five divisions, or sections, and this belongs to the first and largest section, *Areceae*, which is called after *Areca*, the Cabbage-tree Palm, and in the system of Linnaeus our plant is arranged in the sixth order of the twenty-first class, *Monococcia Hexandria*.

We cannot close this notice without reprinting what we wrote in 1843, when the experience of Dr. Wallich’s excellencies were freshly impressed on us. Happily our forebod-

ings of his dying in India have proved groundless, as Dr. Wallich is living, and long may he continue to live, in England.

"Of the Superintendent of the Botanic Garden, Dr. Wallich, I cannot speak too highly: his scientific attainments need no testimony from me; they are demonstrated by his published works, and by fifty societies, which, unsolicited, have enrolled him among their associates. But I must not omit to mention the urbanity and liberality with which he meets the wishes, not of his friends only, but of all who seek from him either the gratification of their curiosity, or an addition to their botanical stores.

Dr. Wallich is by birth a Dane, and was a medical *attaché* to Chandenagore, the chief Indian colony of his native country; and it was to the estimable Dr. Carey that he was indebted for bringing his scientific merits under the notice of the government, and, subsequently, for his appointment to the honourable, lucrative, and delightful office he now holds. To this he is devotedly attached; and though of late warned that a residence of many years in a tropical climate renders a change to one more temperate desirable, yet I much fear he will linger on, till he becomes the tenant of that grave which he has already prepared in a favourite shaded spot among his botanical treasures.

"During the last two or three years, the doctor has succeeded in acclimatizing many plants, which must eventually become objects of commercial importance. Madder (*Calotropis procera*), *Manettia glabra*, a substitute for ipecacuanha; *Crinum Asialicum toxicarium*, a substitute for the squill; the guaiacum, and quassia plants; *Hemidesmus Indicus*, a substitute for sarsaparilla; fustick (*Maclura tinctoria*), *Cesalpinia coriaria*, abounding in tannin; and various other useful plants, are of the class in question."

B. J.

THE FRUIT-GARDEN.

SOME letters lying by us at this moment, remind us that this is the period at which many persons desire to make new plantations of *Strawberries* and *Raspberries*; and as one signed B. B. would seem to embody the bulk of the enquiries necessary, let that be the text. B. B. asks—"When the beds should be made?"—"How they should be treated?"—"The kinds most useful in a family?" all of which we will endeavour to answer.

STRAWBERRIES.—As to the time of making the beds, that is sometimes settled on principle, sometimes on expediency; the latter more generally the case. If the thing be judged on its own ground alone, there can be little doubt that as early as the runners can possibly be obtained, is the very best time. Indeed, we would never remove them at a mid-season; either very early or very late is perhaps the best practice. When we say very early, it is meant that the very first runners the parent plants can be made to produce are desirable; this will be generally about the second week of July, extra means having been taken to induce an early and strong brood. And as to very late, about the second week in October may be taken; but the plants for this purpose may either be early obtained and strong runners, which have been planted in July in reserve beds, and now removed with nice balls of earth; or runners obtained from the established plants forthwith: need we add that the former will carry a decent crop, and that the latter *will not* do so until the ensuing year. Those who intend to make early plantations on principle alone, and to do all that can be done to obtain a good crop of fine berries in the first season, *must* be "up with the lark." The plants from which the new plantation has to be made having been determined on, the cultivator should spread two or three inches thick of old vegetable soil or manure beneath them in the month of May, or before the runners come forth; and on this the runners will be produced unusually early and very strong. By this treatment, nice plants will be obtained a month, or nearly so, before those left to chance. Those who are determined

to use every means, may watch the development of the runners, and place a stand or a hooked peg on the bine, to make the young runners sit close to the ground. In addition, the extending runners may receive frequent sprinklings of water; and such means being taken, runners of a very superior character may be generally obtained *very early* in July. If these can be planted out where they are to remain finally, so much the better; this is doing all that can be done; but if, through a severe limitation of ground, expedients must be had recourse to, why, as before observed, the next best plan is to plant the young runners out in reserve beds until October, or the following February. This course is resorted to in order to economise ground, and is the practice of hundreds, and the only objection is, that a very full crop cannot be expected; nevertheless, we have had very good crops by such means, especially of the Keen's seedling, which possesses great aptitude for early bearing. Less nicety is necessary in preparing beds for the latter practice. Deep digging and much manuring is quite unnecessary—nay, prejudicial, in this case. Any bed or beds which have produced an early crop of any kind after a good manuring, are at once eligible without digging; simply levelling them down. Thus, early lettuce ground would be very proper. If, however, beds have to be prepared for them, a little of very old and rotten manure forked in, only about three inches deep, and well blended with the soil, will be amply sufficient. The object is to make a strong and compact plant betimes, and as they cannot (in attempting to save room) be planted at *great distances*, it is useless to encourage an overgrown plant. The runners by this latter practice may be planted at from six to eight inches square, and should be frequently watered during the earlier stage of their growth; as the earlier the plant becomes stout, the greater the produce will be. At this narrow distance, and on shallow dug, but rather rich soil, their roots will become interwoven by the beginning of September, and a slight check to rapid growth ensues, highly favourable to the formation of a strong blossom. As before observed, these may be transferred to a permanent situation some time during October; but if high flavour in the berries is preferred to abundance of produce, we would advise—that we have several times practised—that they be not removed until the beginning of the ensuing February. This procedure is based on the well-known fact, that the best flavoured strawberries are produced on plants with moderate foliage, certainly not on those most luxuriant; and this February-planting keeps the foliage less rampant—the fruit, however, may be slightly diminished in size. And now for the making new plantations in *permanent* situations early in July; the mode of coaxing early runners was before explained, and we may now talk of soils, and the mode of preparing them, situations, &c., &c.

Soil.—A deep and mellow loam, about intermediate between what is termed stiff soil and light, is, doubtless, best for the *Strawberry*; it may be added, that where people do not take the pains of watering regularly, as the *London market-gardeners* do, it is better to lean to a soil of an adhesive character, rather than light soils, where a choice exists. As, however, such excellent soils are, perhaps, the exception rather than the rule, we may be allowed to suggest corrections for those of inferior staple. Loose sandy soils are very unfit, they are too capricious in regard of moisture; and before the application of manures is thought of, means must be taken to improve the staple. Under such circumstances, the cultivator should consider his locality, and ascertain what materials can be readily obtained, in order to economise the whole proceeding. Marl, clay, ditch or pond scourings, old peaty material, &c., are, any of them, or all combined, of much service in this case. Marls are capital improvers of this kind of soil, but they

unluckily have a constant tendency, especially those of the clayey character, to subside into a stratum; through the agency, we suppose, of the rains. We have known good cultivators, therefore, in marly districts, apply marl annually between the rows, and this on hot soils had the desired effect. The scourings of ditches or pond bottoms, which have lain to dry for some months, and then turned, and, if possible, some quick-lime introduced, will be found a capital application to either sandy or clayey soils; the latter, of course, is benefited also by a liberal application of sand or sandy material, old lime rubbish, old and mellow peat, leaf-soil, and manures of any kind.

And now for the preparation of the plot. All good strawberry growers agree in the propriety of securing a liberal depth of soil; we should say nearly two feet, if more, so much the better. Trenching must be had recourse to, and if the soil is poor, a good coat of dung introduced. That dung, blended with the bottom of the trench, should not be by any means rotten; if of rather a raw character it will last the longer; and this is requisite, for a deep root in such material is of eminent service during hot and dry weather in June, when the surface-roots being liable to the caprices of the weather, the fruit is steadily maintained by the deep roots. Half-decomposed material, dung, or dung and weeds, or leaves, being introduced towards the bottom, by placing it on the top spit and digging it into the bottom, we would next give the second spit a dressing of more mellow and rather rotten materials, and dig this in with it, and thus will a good foundation be established for three or four years, if necessary. The last spit may be thrown into a ridge, and thus levelled down last of all with a fork; this will bring the manure a little nearer the surface, and mix it better. And now, the whole is ready for planting; and the next consideration is *kinds, distance, and mode of planting.*

We grow chiefly the *Black Prince*, the *Keen's Seedling*, the *British Queen*, and the *Elton*. The *Alpines*, of course, will require special treatment. There are many new kinds, some of much merit, especially *Myatt's* kinds; but we think the amateur will do well to establish his main stock with these, and shortly we will give an account of some newer kinds. Here we cannot forbear mentioning one of great promise, brought out this summer by Mr. Chivas, seedsman, &c., of Chester, a spirited tradesman, who sent a plant with ripe fruit over here to be tasted. We found it of high flavour, and a likely appearance, and Mr. C. affirms that it is the earliest we have, or nearly so, and a good bearer. However, next summer we shall hear more about it, as many are for trying it; he has named it *Earl of Chester*. To pursue the subject of planting. Some plant in beds, some as edgings, and some in single rows; the last is our practice, and the practice of most good cultivators. In making a new plantation, of course the first year the plants will only attain half their size; we, therefore, plant them *twice* as thick in the row as we intend them ultimately to remain, and in the beginning of August, or when the crop is gathered, we cut every other plant up; this gives the remainder room to ripen a good bud. Three feet we do not consider too much *between the rows*, and the plants ultimately two feet apart *in the row*, so that by double thickness *in the row*, they may be planted exactly one foot apart at the first. We are aware that practice differs in distance as well as other things; but this, we believe, will produce the *greatest* crop of *good* strawberries, which, whatever market-men may do, ought to be the aim of every private grower. There must be no drill drawn for the plants; the best way is, after stretching the line, to make a mark with the end of a rod, having a notch in it to ride cross-legged over the line, and then to pull the line up and plant by the mark. Care must be taken not to bury

the hearts of the plants, which is soon done if the planter is awkward; and in order to avoid this, it is well (if the soil is tolerably dry) to pass the foot lightly down the line before planting.

The runners should be taken up carefully with a trowel, every fibre secured, and, if possible, every little ball of soil secured too, and planted forthwith. No tying about, or drying up, permitted. As soon as planted, they must receive a thorough watering, and this may have to be repeated once every two days for a week or two, in order that no time be lost. As soon as they are rooted in their new situation, liquid manure may be had recourse to until the plants get strong, when it may be dispensed with, and by persevering attention the plants will be *very stout indeed* by the middle of September, and forming a strong bud in the centre of each; henceforth, no excitement need be applied, they will sink gradually into a state of repose. We forgot to say that not a leaf must be cut off on any pretext whatever, from the removal of the runners in July until the following February, or rather March. Of course, the plantation must be kept clear of weeds; and those who have tender kinds, such as the *British Queen*, will do well to throw a little litter of any kind over them during the hard frosts of winter.

Any little detail of proceedings which the severe limitation of our pages precludes the possibility of entering fully into, may be found in that most useful little book of general reference, *The Cottage Gardeners' Dictionary*, which, we do think, will be found a good pocket-assistant to all those who have little time, and are very much in earnest. *Raspberry* in our next.

R. ERRINGTON.

THE FLOWER-GARDEN.

COMPANION TO THE CALENDAR FOR OCTOBER.—Beautiful as the first-rate flower-gardens generally are about the beginning of October, like the Crystal Palace, they will be stripped this month. The contents of the one will have to be so packed as to occupy as little room as possible in houses, pits, and frames, or in the cellars or storerooms in-doors, or may be in the attic—the safest place about a house for the old *Scarlet Geraniums*, if the frost can be kept from them. The contents and non-contents of the Crystal Palace we have nothing to do with at present; what we have learned about the distribution of colours in either, must also give way to this monthly companion. *Alstroemerias*, the first on the list, must be planted, or transplanted, this month, but the next, or the following, and even the end of February will do, only that October is the best. *Van Houtt's seedling Alstroemerias* are very pretty, and they sport naturally like *Sweet-williams*, when a few sorts are growing together in one bed, so that there is no end to the varieties, nor any use in naming them. Any light rich soil will do to grow them in, and if it is naturally damp at the bottom, all the better, if it is well drained. Their roots are not unlike young asparagus roots, and they have eyes in the same way; these roots should be set in rows in a bed no more than six inches apart, and nine or ten inches from row to row; they should be covered six inches deep, and if the winter sets in very hard, a layer of leaves, or something of that sort, should be put over them till February. They do not come above ground until the end of March, unless the winter is very mild. Early in April the bed might be sown with the blue *Nemophila*, which would then be in bloom at the same time with the *Alstroemerias*. After flowering, the roots should be taken up and dried, and again re-set in October. It is customary to keep these *Alstroemerias* three years in the bed without removing them, but that hurts the roots very much, as they bury themselves

deeper at every growth they make. Like some bulbs, they soon get so deep in a loose bed that the effort to grow up to the surface is too much for them. *Bomareas* are twining plants, which, in their flowers, look so much like *Alstroemerias* that they have been mistaken for such. *Bomarea acutifolia* is the best of those in cultivation, and should be grown by every one against posts, walls, or some support. *Lapageria rosea* is another plant, a new one of great beauty, with the habit and flowers like a *Bomarea*; this is the time to plant it also. None of these are very good for pots, and they should always be planted in the free soil.

Anemones and *Ranunculuses*, that is border ones, are to be planted from this time to next April, at intervals of a month or six weeks, according to the weather, or they may all be put in at once now, or in February. Seedlings of them, if in pots or boxes, must be put under shelter this month, and kept from the frost this winter; not but what they are hardy enough, but that they are more liable to the attacks of insects, and other injuries, if they are left out to take their chance. *Bulbs*, of all the hardy kinds, to bloom next spring, should now be got in without loss of time. Those who contemplate a fine display of mixed *Hyacinths* and early *Tulips* next April, should see to their stock of them immediately. It is a great mistake to put off planting them till late, because they produce a good bloom if they are in the ground before Christmas, that bloom being at the expense of that in the following season. If the beds are not ready to receive them, let them be put into small pots and be plunged somewhere till the beds are in readiness for them. I am asked for a list of the principal hardy bulbs that require to be planted this month or early in November—this is on the stocks, and will appear immediately. I am also asked if I can look over plans of flower-gardens, but I must put them off for one more month, for reasons that will be obvious by and by.

Box-Edgings.—We are so long accustomed to have our box-edgings planted in the spring, that few dream of doing so in the autumn—but this month is certainly the best of the twelve to plant dwarf box. About thirty years ago, all, or almost all, the box-edgings in the largest kitchen-garden on the other side of the Grampians stood about a foot high, and as much across the top; and one or two of the men got into the way of trimming the sides and top with the scythe (and I had my first lessons at mowing on these very edgings), but a new gardener from Cullen House, in Bamffshire, condemned them, and had the whole trenched up that season, in October, renewed the soil, and planted afresh with slips, without a particle of roots, and the whole all round the garden went off as well as could be, and required to be fresh clipped next June.

Carnation Layers.—After the middle of this month it is much the best plan to let any layers that may yet remain on the old stools, remain as they are till some fine dry weather comes on in February next, and those that were planted out for the last six weeks will require to be looked over, to see that they are firm in the ground and safe from slugs or grubs, all weeds cleared away, and if a little soot were scattered in between the rows, and then the ground loosened with a hoe, it would encourage them much, and be the means of freeing the soil from grubs and other enemies.

Cow-dung, &c.—In every good garden there is a heap of cow-dung, pigeon-dung, or sheep-dung, made up every year, and it generally takes two years to reduce such heaps into good working order for potting, or rather for mixing with potting composts. These heaps are now swarming with worms, and we gardeners delight to see them at work, as we do bees, while any of the dung remains green or fresh, but as soon as the heap is ready for our use, we must rid it of the worms before we put the dung under cover for future use, as

we generally do about this season. A peck or two of fresh soot, and a few pounds of salt mixed up with the dung, will kill all the worms in a large heap. The soot and the salt will add to the goodness of the heap, and the dead worms themselves will soon become the best part of the mixture.

Soils and Composts are among the most necessary things to be looked to this month; fresh turf, loam, and peat for next year, leaf-mould, broken bones, and all the other necessities of the potting-bench, should be got together before the winter sets in, but more especially that which remains on hand from last season. Part, at least, of all the mixtures, or simples, should be put under cover, to be ready for potting in a dry workable order. If there are any mysteries in gardening, one may meet with them in the compost-yard if you look for them at the right time.

Rose Buds.—We often hear of people being puzzled about the right time to untie the matting with which Rose-buds are secured; but after the end of September, it does not matter much whether they are loosed or not for months to come, because the shoots will not swell, and so tighten the bandages after this season; but the top parts of the stocks above the new buds should now be cut off to within six inches or so; this is of great use to strengthen the buds for a vigorous start next spring.

Dahlias.—Be sure that their colours, and their heights, and proper names, are all registered before the frost cuts them off, so that you may know how to manage them next season; and if you happen to be near a nursery, look in and see what sorts you would like to order before it is too late. Make choice of the more dwarf kinds, if they push up their flowers well, but have nothing to do with those sorts which have drooping flowers, let them be ever so pretty. Ask for *Zelinda* first; it is the most useful of all the Dahlias in the country for the flower-garden, because it will divide any two colours which would not otherwise agree, being nearly a black Dahlia, and not more than two feet high in any soil, and it blooms most profusely from the beginning to the end of the season. Any dealer who would not mind to be thought singular, might drive a good trade out of this and one other Dahlia which I shall name presently, by going round the gardens where they are growing, and exchanging some other plants for the over-stock which gardeners might have to spare, increase them in the spring, and offer them for sale at two-pence a plant in THE COTTAGE GARDENER. The half-a-guinea-a-plant trade in Dahlias never made a fortune yet, and never will; but I am quite certain that the two-pence or three-pence trade would return five-and-twenty per cent. for some years. The other Dahlia I alluded to has no name, but it is as dwarf as *Zelinda*, and of a scarlet colour, therefore most valuable for the flower-beds. Dealers might call it *Scarlet Zelinda*, and in a few years we might get an entire new race of these useful flowers, and call them all *Zelindas*, and putting the name of the colour before the word *Zelinda*—white, red, scarlet, lilac, striped, yellow, and even blue *Zelinda*, if they can get it—then we should know what we are about when we buy any.

Planting Evergreens.—*Libocedrus chilensis*, "the Prince's tree," as they call it, has gone on very well indeed, but the grass round it does not thrive at all, because every one who comes to see the garden must have a look at it, and so trample the grass that no chance of growing is left it. Who will be next in the field and plant *Libocedrus tetragona* from the same country? A most splendid hardy evergreen tree, which will grow as big as the Cedar of Lebanon. The *Weeping Cypress* of the Vale of Tombs, lately from China, is now getting cheap enough, and is a tree of great beauty, and every one who has a place for it should buy one at once. The *Great-fruited Cypress* from California is a wonderful

tree, and one of the tallest of the tribe, which may now be had as cheap almost as a larch; they call it *Cupressus macrocarpa*, and sometimes *Cupressus Lambertiana*. Mr. Gowen's Cypress is fit for the smallest garden, as it grows no higher than twice the height of Mr. Gowen himself, and he is not of the tallest—this is *Cupressus Goveniana*, and Prince Albert said he planted one of it somewhere for a memory-plant last June. His Royal Highness is evidently much gratified at this marked respect shown him by those for whom he plants commemoration trees; to be the first to plant a new tree in any country is a great deal to say, but in our country, where almost all the trees in the world have been got, to plant a new tree is a rare thing; we all like rare things, and, therefore, cannot do better than get them as fast as they come, and plant them ourselves. But I am out of my beat, this is not the time to plant rare trees at all; it is the very best time in the whole year, however, to buy them, and that is what was running in my head all the time. The nurserymen can grow them so much better than others in summer, because they have all the conveniences at hand; and now the growth is over, the old planters go and select the best plants, and, first come first served, will leave the second-best plants for those that are young in the fancy, and think that any time will do.

Bedding Plants.—To do justice to this section, there should be a whole letter filled with the subject in October and May. As many plants of the different kinds of *Geraniums* should be saved as one can find room for in winter. Here we cut the strongest of the scarlet breeds, such as *Salmon*, *Cherry cheek*, *Pink* and *Scarlet nosegays*, *Punch*, and *Compactum*, very close, not leaving a single leaf on them; they are planted into cold pits as thick as they can stand, and in no more soil than will just cover the roots, sand and leaf-mould being the principal soil, the glass is kept off as much as the state of the weather will allow; the great point we aim at is to get the cut ends and other wounds dried up as perfectly as possible before the frost sets in very hard. In wet weather the lights are tilted front and back, the frost never hurts them, one clean mat is spread over the glass and then a thick covering of straw or fern, they are never watered the whole winter. About the turn of the new year the cut ends become mouldy, and young leaves begin to spread, at this stage they cannot be kept too cold, and the first fine day in February the whole are gone over to cut off all the mouldy parts, and if the plants are much disturbed they get their first watering. The oldest plants of these strong growers flower best. Among the old greenhouse sorts for bedding, the oldest of *Splenii*, *Rouge et Noir*, *Quercifolium*, and *Maylis's nosegay*, answer best. All the *Diadematum* breed are better young, or not more than one or two years old. *Lady Mary Fox* should never be propagated but in the spring; summer cuttings of it make long leggy plants.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

ODDS AND ENDS ABOUT PITS AND GREENHOUSES.—"Better late than never" is an adage as consoling to the procrastinator, as "a penny saved is a penny got" is refreshing to the niggardly parsimonist. Examined either in a social, moral, or economical point of view, it will be found that the one encourages the "delays that are dangerous," while the other fosters the spirit that in looking after the pence loses the pounds. As upon the community, as a whole, the influence of such maxims is more injurious than beneficial, so it is doubtful if the lovers of plants and flowers can plead an honourable exception. Here, for instance, is Mr. A.,

who has been collecting plants all the summer, resolving, and re-resolving, that before the frost comes he will have a structure of some sort, roofed with glass, fitted to receive them. The chilly nights are constantly reminding him of his favourites, and happy will it be for them, and satisfactory to himself afterwards, if his decision should be prompt and carried into instant action, and even then much will depend upon good weather continuing the best part of two months longer. Procrastinate a little more, wait until the editors of all the periodicals are consulted, to find yourself quite as much nonplussed as ever; and then, somewhere beyond the eleventh hour, commence your work in earnest, and the following are a few of the results you will realise. Bricks, of course, you will want, but the best have long been picked from the fields, and you must be happy with the discarded soft ones, or those from a late kiln, that during the autumn and winter will suck in moisture like a sponge. Fortunate you may be in getting good lime made into good mortar, and the smooth, neat-pointed lines between your rows of bricks that delighted you so much at night, may, after a few hours frost, become as "tattered and torn" as something we read of that came in contact with "the cow with the crumpled horn." Need I advert to sashes made of green wood, painted, glazed, and re-painted again, before either were seasoned or dried; sticking like birdlime between the rafters at one time, and rattling loose between them at another; the blistering and peeling of the paint, the cracking and mellowing of the putty, until its adhesiveness is about equal to kneaded sawdust, the damping of plants from drip, the breaking of glass from loosening, or the grand finale after such a winter of anxiety, the addition of a heavy per centage to the original bill for getting things made somewhat passable to appearance. Then, there is Mr. B., who is no procrastinator, but has a sort of vague opinion that "hothouse builders, and hothouse heaters (honest and honourable though they be), are yet no better than they ought, and require to be securely dealt with; cannot conceive how one man can advertise wood and glass at so much per foot, and another man as honestly demand a third or a half more: surely there can be no such difference between the timber, and as for the glass, it can only be glass after all. See how cheap Mr. Rivers builds his houses, though, perhaps, scarcely neat enough for my situation; but cheapness is a great thing now a-days!" So a driving contract is entered into, and our friend congratulates himself upon his wisdom, until contrasting the beautiful appearance and stable permanence of Mr. C's greenhouses, with the warpings and crackings, the patchings and mendings, the peelings and paintings and puttyings, progressing ever and anon with his own, he begins, at length, to have a dim apprehension that there may be such a thing as "penny wise and shilling foolish."

Let it not be for a moment supposed that these remarks have any particular reference to the case of inquiring correspondents; of course we will not at all object to our friends taking home whatever they find to be applicable, though, upon the whole, I fear that if we blue-aproners are not the greatest promoters of the evil, we are generally the chief sufferers from it. From the consideration of the subject, and the inquiries made combined, we may draw the following deductions.

1st. Where neatness and permanence combined are essential to comfort, the employment of the best materials will, in the end, be the cheapest and the most economical. Between the very best and the very worst bricks there will only be the difference of a few shillings per thousand. The first will last for generations, the latter will be a constant annoyance. So of inferior unseasoned wood. Well-dried timber is well-worth the trifling addition the merchant must have as interest for his money and the rent of warehousing.

2nd. To enable the constructor to satisfy with cheapness, and, at the same time, yield a fair profit to himself and give satisfaction to you, work must be done expeditiously, but its varied stages must not be hurried pell-moll on each other. Time must be given. For instance, a bricklayer will build your wall quicker with large joints of mortar than with small ones; the latter will not only be the neatest, but, if well done, by far the most lasting, and free from damp. Putty may be made of the best whitening and oil, and used almost immediately; but it will possess no adhesive powers, equal to that as well made and duly fermented in a heap for several weeks. Whatever coats of paint the sashes had before, they may be painted again whenever the surface of the putty is dry; but peeling and blistering can only be prevented when the putty has stood long enough to dry thoroughly.

3rd. Whenever, for a sufficient reason to yourself, *quality* and *quantity* came into conflict, decide upon the former; for instance, light rafters, and their sash-bars of the best timber, will be more satisfactory than much larger ones of inferior unseasoned wood. I have already mentioned somewhere, that by using wooden ventilators, and having the sash-bars strong, and fifteen or eighteen inches apart, rafters, and consequently the cost of forming them, might be dispensed with altogether. The same of bricks: for most purposes a low wall of four-inch work, of the best material, well laid in good mortar mixed with sifted coal-ashes, and, better still, the upper layers placed in cement, with or without nine-inch piers every nine feet, will be more satisfactory than a nine-inch wall of soft porous bricks. In building pits, the upper part need never be more than one course thick at the top, where means of heating the interior exist.

4th. "How deep shall I sink my pits in the ground?" This will depend on what you want them for. If great warmth is needed, and by drainage and rendering the ground for a yard or so round the pit waterproof, damp, when not wanted, is excluded, you may go from one to several feet down, as the deeper you go the less heat will be taken off by the sides of the pit by winds and radiation, and the easier will the glass be protected if you think necessary. Where the object is merely to protect from frost and damp in winter, I would have the floor of the pit above the surface of the ground, and that floor well grouted with lime and gravel to prevent the damp rising. In such raised pits, hollow walls, as economising heat and preventive of damp, are of great importance, especially in places where it would be undesirable to have any sort of litter against them in winter. A hollow nine-inch wall will require only a few more bricks than a solid four-inch wall, and a hollow fourteen-inch wall, only a few more than a solid nine-inch. Any bricklayer will show you, in a few minutes, how it is done, better than I could do with pages of letter-press. I have had a fourteen-inch hollow wall, and for coolness in summer and warmth in winter, and freedom from damp at all times, it is invaluable. Confined air is one of the best non-conductors of caloric.

5th. *Expense*.—This is a matter that almost every correspondent inquires about, and it is one that I must leave almost unanswered; first, because I have had but little to do in the contracting line, and that little, contrasted with others, satisfies me that, to have work satisfactorily done, you must give a fair price, and apply to tradesmen who have a character to sustain; and, secondly, because expense is so much regulated by local circumstances. For instance, the best bricks may now be got for about thirty shillings per thousand; but if these are to be driven or conveyed ten or twenty miles, a considerable per centage must necessarily be added, which the purchaser is apt to forget. The same with respect to timber: sashes may be had, well-made, glazed, and complete, from 7d. to 12d. per square foot, accord-

ing to the size of the timber and the quality of the glass used, though from 8d. to 10d. might be deemed an average sum. But if you employed a carpenter or an architect in the country to make them by hand, he could not do it so cheaply as where the wood was cut by machinery; but then, even here, you would gain something in saving the carriage from great distances. In these days of the division of labour, and where carriage is at all commodious, the most economical plan is to employ those who follow plant-house building as a regular trade. I have been speaking of houses glazed with good 16 or sheet-glass. Where small, inferior glass is used it would be cheaper, but not so much as to counterbalance for the unseemly appearance, as what is gained in the cheapness of the material is mostly lost in the extra expense for glazing, &c. By calculating the number of square feet of glass, you can thus approach the expense it should cost. Then, again, as to heating, one shilling is about the current price for a running foot of four-inch cast metal pipe; but if you have many elbows, that must be an extra, and so will be fixing and the carriage; the latter, if far from a railway or canal, will be heavy. Where there is no danger from being trampled on, &c., galvanised iron pipes would be cheaper and lighter, and, though not tried, I think they would answer, merely soldered together; and for greenhouses, where a brisk, quick heat is oftener wanted than a stationary one, they would be accommodating, as the very thickness of the metal pipe that enables it to keep heat long, causes it to give off heat more slowly. For a greenhouse, the most of which was glass, a foot of pipe would be required for six square feet of glass; but for this, and many other matters connected with this subject, see articles in March and elsewhere. Since that time our advertising columns have supplied a desideratum that was then felt, namely, a cheap boiler for small houses. By turning back to August 31, it will be seen that Messrs. Burbage and Healy supply boilers from 10 in., that will warm 50 feet of 4-inch pipe at £1 15s., up to those that will heat the largest structure. If any thing could be desired, it would be one capable of heating houses of half the size; but as it is, I have no doubt that the boiler will now be substituted in many places where flues were seriously thought about. For a constant heat, these are still not to be sneered at; but for sudden heats, to meet sudden frosts in cool greenhouses, they are far inferior to the pipe with hot water. Finally, whatever is resolved upon, let all be clearly settled, and a fair estimate given, beforehand, guarding against everything in the shape of *extras*, than the paying for which, I know nothing more disagreeable and disheartening.

I find I must, to meet inquiries, crave a little more space. "*Ridge and furrow roofs, and span-roofs—which are best?*" Both are best according to circumstances; but in the contemplated width of thirty-four feet, with any thing like architectural ornament at the sides, the ridge and furrow would be the neatest; or you might have a double-hipped roof, with a gutter in the centre.

Propagating House, fifteen feet long, twelve feet wide, seven feet high at the back, and six in front, "what will be the first expense?" This you must calculate from the above. "What sized boiler?" This must be regulated by what you want to do with it. Are you to have fermenting matter for bottom-heat, and pipes for top-heat, or are you to have a tank for the first, or pipes surrounded with open material, such as brick rubbish? We do not clearly see through the plan, but, as far as we do, we cannot say much in its favour. The sashes are more than the full length, and that would be unhandy, unless you have ventilators in the front and back wall; and there is nothing shown of the internal arrangement; besides which, the slope of only one inch to a foot, from the back wall to the front, would, in the cold mornings

of spring and autumn, keep your cuttings under a shower-bath. I would build both my walls from three to four-and-a-half feet in height; on these I would fix a ridge and furrow roof, the apex of which should be from seven to eight feet from the bottom of the pit; sunk or otherwise, beneath that apex, I should have my entrance door, and a path nearly three feet wide; on each side I would have a pit supplied with fermenting matter, and a pipe round the walls to dry up damp; but, better still, I would prefer two tanks, one on each side, with power to heat one, or both, at pleasure, made of iron, brick and cement, or wood covered with slate, and sand for plunging.

Cucumber and Melon Pit.—To this we have similar objections; as a low pit, the breadth is too great to be manageable, and the slope would only suit summer work. As it is to be on the end of the propagating-house, you might build them both similar, though it would not be so convenient for the purposes of the latter. Have a short-hipped roof, with a path under it along the back, pipes along the front for top-heat, with or without a small path to get round there, too, at times; a bed in the centre heated by pipes or tanks, and the melons and cucumbers trained 15 inches from the glass. If once you thus grew them, and attended so easily to their wants, you would never place them in a low pit, unless from necessity. Although your propagating-house would not be so handy as by the first mode, you would have the pleasure of looking at the whole concern in one range, and this is the way I follow it out. Sink it as you propose, $2\frac{1}{2}$ feet below the ground level, raise the front wall 2 feet above this, and the back wall 4 feet, which will have a passage along the front 2 feet wide, though a dwarf must stoop to walk in it, and a path of 3 feet along the back; over this have a short-hipped roof of $3\frac{1}{2}$ feet, joining the front sashes at an apex of 7 or $7\frac{1}{2}$ feet from the floor. This will give you a bed in both houses of 7 feet in width, which may be slightly sloped to resemble the roof, though for many purposes I would prefer it level, and not more than 3 feet above the base line. The hipped roof at the back might be opaque, if you found out anything much cheaper and more durable than glass. R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC STOVE PLANTS.

SIPHOCAMPYLUS.—A genus of soft-wooded stove plants, of a sage-like appearance in foliage, and, in most instances, of a *Gesneria*-like flower. Many of them are very beautiful when in bloom, and the following selected list are worthy of general cultivation, wherever there is space and convenience to grow them.

S. bicolor (Two-coloured S.); S. America. A free-flowering handsome plant, with egg-shaped, tooth-edged leaves, and red and yellow flowers. 2s. 6d.

S. coccineus (Scarlet S.); S. America. This is a fine showy species, when well-grown. The flowers are nearly two inches long, and much inflated, and of a glowing, crimson-scarlet colour. The leaves are broad, egg-shaped, and deeply-toothed. It flowers abundantly through the greater part of the summer. Very desirable. 2s. 6d.

S. glandulosus (Gland-bearing S.); New Grenada. A very useful plant, flowering through the autumn and part of winter. Fine, sea-green, large foliage, with flowers tube-shaped, two-and-a-half inches long, and of a beautiful light-purple colour. Very peculiar and desirable. 3s. 6d.

S. manettiaefolius (Manettia-leaved S.); Brazil. This forms the neatest plant of the whole genus. As soon as it is rooted from the cutting, the top should be nipped

off; and when the branches, in consequence, have pushed two inches, stop them also, and tie them out, to allow more central shoots to grow up. This practice continued till the plant is a foot or more high, and as much through, will render it a neat, dense bush, covering the pot entirely. The leaves are bright green; the flowers orange-red, with yellow tip, produced freely at the ends of the shoots. A neat, desirable species. 2s. 6d.

S. microstoma (Small-throated S.) var. *rubra* (Dark-red-flowered variety); New Grenada. The species and variety are both very handsome, free-flowering plants. The flowers are more tubular than any other species, and the opening, or throat, almost closed, hence its specific name. The blooms are produced in clusters, at the end of each shoot. If there is any difference in point of merit, perhaps the dark-coloured variety has the advantage. Both are worthy of cultivation. 2s. 6d.

Mr. Louis Van Houtte has published, in his "Flora," several more species of *Siphocampylus* from New Grenada, which, from the plates, or figures, appear to be desirable; but as the beauty of a plant depends so much upon its habit, we do not venture to recommend them to our readers till we have seen more of them. One species that he recommends strongly, *S. orbignyana*, we grow, but it has reached the height of three feet, and has not as yet shown any disposition to flower, though we have kept it in various situations, in the stove, in the greenhouse, and in the open ground. When it does flower, we will report its merits as a flowering plant; merits we have not yet discovered, except through Mr. H.'s plate.

Culture.—Soil.—This is the first thing to provide after any cultivator has obtained an addition to his family of plants. The genus *Siphocampylus* is not very fastidious in respect to soil. The ordinary compost of peat, loam, and leaf-mould, with a due proportion of sand, will suit every species, except, perhaps, *S. manettiaefolius*, which we judge requires more peat, and a more liberal addition of silver sand.

Propagation.—By Cuttings.—Seeds are rarely produced, but that is of little consequence, as the whole genus strike root from cuttings as easy as willows. The best cuttings are made of the young top-shoots, not too gross or sappy. Make the cuttings by taking off the lower leaves, leaving only two or three at the top. Cut the shoots or cuttings even at the bottom, and put them in round the edge of 5-inch pots filled with the compost, and a thin layer of silver sand at the top. Water gently to settle the sand close to the cuttings, and place them in a gentle hotbed, or under a hand-glass in a propagating house upon a heated bed of ashes or sand. Shade from the bright sun till they strike root. This they do quickly, and as soon as that is perceived pot off immediately into 3-inch pots, replace them in the frame or under the hand-light, and shade again till fresh roots are formed and the plants fairly established. Then gradually inure them to bear full exposure to sun and air in the stove.

Summer Culture.—With stove plants this season may be fairly assumed to commence about the middle of March. At this time we will suppose the plants to be nice, small, bushy ones, with their pots pretty well filled with roots. Let as much compost as may be required, or a little more, be placed in a warm shed to bring it to a temperature nearly similar to that in which they are growing. Have also in readiness the necessary quantity of drainage material, and the proper number of the right-sized clean pots. All these being in the proper state for using, bring the plants into the potting-shed, drain the pots well, and re-pot the plants, giving them a rather liberal shift, about three-quarters-of-an-inch between the old ball and the sides of the new pot. This is a proper time to nip off the tops to cause them to branch out, and so form bushy plants. Treat them

afterwards in the same way as is mentioned above for *S. manettiaefolius*. The *Siphocampylus bicolor* and *S. microstoma* are rather rambling growers, and will require training to a circle of sticks, tied together at the top to form a pyramidal trellis, or they may be trained to a globular trellis, leaving as many points of shoots outside as possible, to produce the flowers upon.

Water.—This must be supplied in sufficient quantity to keep the plants healthy and growing, but be careful, too much will cause the young roots to perish, and then good-by to the plants. They will become sickly, turn yellow, and be a prey and a nest for the red spider. Whenever a plant becomes diseased in such a way, the best remedy is to take off one or two most healthy cuttings, and then throw the plant or plants to the dunghill. As soon as the bloom is over, the plants should be cut in severely, be kept rather dry till fresh shoots are produced, and then turn them out of the pots, reduce the ball and roots considerably, pot them into pots half the size, and keep them close in a frame or shady part of the stove till they re-establish themselves. The second year they will make much stronger and finer blooming plants, and will, of course, be more attractive in consequence. After the second year they should be thrown away, and younger ones brought on to succeed them.

T. APPLEBY.

(To be continued.)

FLORISTS' FLOWERS CULTURE.

THE TULIP—(continued from page 372, of the last volume).

In our last paper on the culture of this noble flower, we described pretty fully the formation, draining, and compost for the bed. The next point to consider, is the shelter necessary for the flower before and when in bloom. This may be divided into two heads:—first, where the collection is small, and the means small too; second, where the collection is large, and the means ample. The first is, perhaps, the one that a new beginner would adopt, and consists merely of hoops, either of wood or iron, with canvas covers or mats to be thrown over the hoops, which should be high enough to keep the covering clear of the flowers. This covering should be applied not only when the plants are in bloom, but also to shelter them from the late frosts that sometimes come after the plants make their appearance; as well as the cutting winds that often visit us in this country during the early months of the year. This shelter, however, must not be used except when absolutely necessary. Too much shelter only coddles the plants, and makes them so tender that a too sudden exposure, or the least neglect in applying the covering, would be equally as injurious as no shelter at all; therefore, on all favourable occasions remove the coverings entirely, and let them have the benefit of fine weather and gentle rains. Do not, however, imagine for a moment that because shelter may be carried to excess, and thence become injurious, that it is unnecessary. Far from it—a top-coat is useful and necessary to the traveller in severe wet and cold weather, but who would be so foolish as to wear it in warm congenial sunshine? Apply the covering when needful, and then only, and your plants will be grateful for it. We do not forget our good friend Mr. Errington's principle of retardation applied to the tender buds of the peach, and we claim a little credit for the same idea applied to florists' flowers, which we recommended last season to be used to the tulip. If the spring is unusually forward and warm, so as to bring their flowers on too early, and thereby endanger the perfect production of fine ones, by all means retard them, by putting on the covers only on the side exposed to the premature heat of the sun. The sheltering then amounts to this: not only to protect from severe frost, but also from too much premature heat.

2nd. A shelter, where the collection is large, and the means ample.—This kind of protection is a more formidable affair, and, at first, implies a considerable outlay. To see it on a grand scale, and in perfection, visit the establishment of Mr. Henry Groom, at Clapham Rise, near London; but as every one of our readers may not have the opportunity of doing so, especially now that the grand inducement to visit the metropolis, to see that and all the other great sights, as well as the Great Exhibition in the Crystal Palace, is over, we shall endeavour to describe the way in which a complete shelter on a grand scale can be given to a flower really worthy of such an outlay, when the passion to cultivate it is strong, and the expense no object to grow it to perfection, so as really to see and enjoy its splendour. First, then, fix upon a situation for the site of the beds; let it be open, but sheltered from the points of the compass from which the cold blasts come; drain it effectually, and prepare the beds as described on a former occasion, first staking out the size supposed to be necessary. The most convenient width of each bed would be five feet. This will hold five rows, nine inches apart. A walk between them may be either three or four feet; the latter will allow more room for the operator and the spectator. Three feet beyond each bed, on the outer sides, place a row of pillars, four-and-a-half inches square, to support the shelter; each pillar may either be let into the ground, and well rammed, or be inserted into an iron or stone socket. These pillars should stand above the surface at least five feet, and at a distance of five feet from each other. On the top of each pillar a rafter should be placed, to meet a corresponding rafter in the centre of the space just over the centre of the walk. Each rafter, at the junction, must be firmly fastened to a longitudinal piece of wood running the whole length of the beds; the length of the beds depending, of course, upon the number of roots, or size of the collection. There will then be required two rollers of wood, of the length of the structure. On each of these nail a sheet of canvass of sufficient width to drop down on each side nearly to the ground. On the top, at the centre, fix a pair of weather boards, projecting high enough to allow the roller and canvass to go under them, one on each side. This will preserve the canvass from rotting, and so enable it to be used for several years. Such is our brief description of a shelter for this prince of flowers, and when once put up, it will last, with occasional fresh coverings of canvass, for half a man's life-time, and might be used for other purposes (carnation pots, when in bloom, for instance), after the tulips are taken up in June. We hope our readers will understand the description, and be able to put up, with the aid of a country carpenter, such a structure. In one of the early numbers of THE COTTAGE GARDENER we described a carnation stage and shelter; if any persons are desirous, and intend to put up a tulip shade, we would recommend them, in addition to what we have stated here, to turn to and consult that article. This shade for the tulip is not only comfortable, and protecting, and prolonging to the tulip, but is a great comfort to the visitors also. Often in May we have bright sunshine, and it is a positive and agreeable luxury to step into a space sheltered from the burning rays, and there enjoy the refreshing coolness, as well as being pleased with the beauties of Flora displayed before us, and seeming as happy as ourselves in their sheltered position. The season and mode of planting must form another essay.

T. APPLEBY.

THE KITCHEN-GARDEN.

CELERY.—The long continued dry weather in August and September, has, in many cases, retarded the growth

of this vegetable, where not assisted by copious waterings from the manure tank; so that a considerable autumn growth may be expected when moister weather does set in, before which, however, take the opportunity to earth it up carefully, and continue to do so at favourable intervals hereafter, as the system of allowing celery to become large before earthing at all is not a safe one at an advanced period.

CABBAGES sown in August may be now pricked out on some well-prepared bed; the object of this is to obtain a more sturdy growth in those not wanted till spring, instead of the crooked long-legged plants they would have been had they remained on the seed-bed; in so doing, do not forget a fair proportion of the *Red*: those planted out for *Spring Coleworts*, some time ago, will be benefited by the ground being stirred in dry weather.

LETTUCES may also be planted out on a south border; we prefer planting them in beds of about three feet and a-half wide, to be hooped over, and at this width an ordinary garden mat will cover them when laid lengthways on, which in very severe weather, in winter, it will be necessary to do.

ARTICHOKES, having commenced bearing early this season, have ceased, and, in a measure, ripened proportionately soon; clear all seed stalks from them not bearing useful heads, but allow the decaying leaves to remain, as we consider them the best and most natural covering for this half-hardy vegetable.

CARROTS may now be taken up and stored away in dry coal ashes, which we prefer to sand, as being less likely to encourage decay; they also keep pretty well thrown loosely on some open shelf, raised a little from the floor, the current of air passing through and below them tending to their preservation; this, of course, relates to cellars and similar damp places under ground; in more dry or airy situations they would shrivel under such treatment, but the plan of close packing them in wet sand (or which is likely soon to become wet) is bad, the vital powers of the root not being sufficiently strong to preserve it from the decaying influence of such a position; much, doubtless, depends on the ground they have been grown in, and other circumstances. *Parsnips* and *Beet* are better in the ground yet awhile, they being less injured by worms and other casualties than *Carrots*.

POTATOES that are yet in the ground must be now taken up and stored away, not too thickly, in some cool, airy place, having first examined and picked out all diseased, or doubtful ones; look over those previously taken up, as it often happens that the disease is most fatal just immediately after taking up.

MUSHROOMS.—Prepare dung and other materials for beds: the fresh droppings from the stables that have never been heated is the best, and when you get it, be careful to turn it often to sweeten; if allowed to heat in such a manner as to look white and mouldy when worked amongst (what gardeners call burnt), its utility for mushroom-beds is much impaired.

Take advantage of moist, showery weather to plant out *Batavian*, and a little *White curled Endive*; the latter can only be expected to stand if the winter be a mild one; the former, being more hardy, may be planted in greater quantities; be careful, in planting, that the earth

just around the plant be very fine, or slugs will find a hiding place in such a manner as to escape the liming you may give the plants afterwards; where they are planted on a border, having a box-edging by the walk-side, run a train of lime or soot along the inner side of it, which will form a sort of barrier over which the slugs are not likely to sally in their attack on the newly-planted vegetable. As slugs are very apt to lodge in box-edgings, this remedy, or rather protection, may be applied to other crops as well as *Endive*. J. R.

[Owing to a mistake, Mr. Barnes, who will write in other departments of our journal in future, has sent us his customary contribution, and we insert it, because it contains, as usual, many good hints. Henceforth the Kitchen Garden will be confided to J. R., who is head gardener to an English nobleman, and whose name in due time will appear.—ED. C. G.]

ARTICHOKES should be attended to forthwith, and the earth's surface well scarified about them and loosened up pretty roughly; and when rain prevails, or on a dewy, mild morning, dredge the earth's surface with air-slaked new lime, in order to extirpate the slug family, which are often numerous in such localities.

ASPARAGUS.—Do not hurry in cutting it down till the stalks are quite ripe, then choose a fine day, and tie them up into small bundles for thatching or protecting purposes.

CAULIFLOWERS.—Provide a slight warmth inside of a pit or frame, or sow in pans, in a gentle heat. Wherever sown, the earth's surface should be close to the glass; and as soon as the plants make their appearance, take the lights entirely off by day, and tilt the lights back and front of a night, in order to maintain a healthy sturdiness; prick off the plants as soon as they can be at all handled, and keep the earth's surface pretty closely and liberally stirred amongst them. If mildew should appear about them, dredge them with sulphur and charred dust.

LEeks that are forward should have a little loose earth placed amongst them.

MUSHROOM-BEDS in bearing, take care the surface soil, or casing, does not get bound and hard with drought; modify it by the application of slight sprinklings of tepid water, with occasionally a little clear manure-water added, which has been brewed from the dung of the cow, horse, sheep, or deer. If the Mushroom-beds are out-of-doors, they should be covered with mulch in rather a damp state, or be made so by the application of slight sprinklings of water. If Mushrooms are cultivated in a shed, or house, or cellar, humidity may be maintained by occasionally sprinkling the floors and syringing the walls with tepid water. This is the best season for making winter-bearing beds, which should be made more substantial than the summer beds; nothing is better than good fresh stable-dung, with enough of good holding loam added to it to modify the heat into a very moderate milk-like warmth. If the materials are allowed to heat strongly, and get what gardeners term burned, dry, and fusty, the best and the most essential properties of the dung for Mushroom culture are destroyed.

JAMES BARNES.

MISCELLANEOUS INFORMATION.

FIG ORCHARDS IN SUSSEX.

I LATELY visited Tarring in the hopes of ascertaining to what peculiarity of soil, situation, and mode of culture it owes its extraordinary success in fig-cultivation. Though the result of the examination was so far unsatisfactory, that it has not enabled me to give a direct solution of the

problem, yet it is possible that a short account of so remarkable a spot may interest some of your readers.

The village is situated about a mile-and-a-half from Worthing, and about the same distance from the sea. The country immediately around it is a dead flat. Towards the

north, indeed, there are hills, but too far off, and too broken in their outline to afford either reflected heat, or much shelter from the wind. Hence, it would seem that most situations on the southern and south-western coasts possess at least equal advantages in winter; while in summer, many inland places, out of the reach of the sea-haze, are, in all probability, hotter.

As to soil; the gardeners at both ends of the village stated that it was hazel loam, and that at ordinary depths nothing else was to be found. Not satisfied with this, I went and examined the banks of a watercourse close by, and found that the surface was a fine light powder gradually becoming more loamy and adhesive below, with a large and increasing admixture of small flints and chalk. The available soil scarcely exceeded twenty inches.

Though standard fig-trees are common at Tarring, there is but one regular fig-orchard. Here the trees, about five hundred in number, form avenues, meeting overhead. The whole is enclosed by a wall, and the proprietor, Mr. H. Botting, informed me that all parts of it, and all aspects are equally productive. Several sorts are cultivated, and are approved of in the following order:—Brown Turkey, Purple Fig, Brunswick (here called Madagascar), Green Ischia, Black Ischia. The two former sorts have of late been classed in catalogues as synonymous, but they are certainly distinct. The extremities of the first are pendulous, of the second erect. The fruit of the Brown Turkey is greenish-brown, and of a globular shape, rather suddenly passing into a long stalk. The other is purplish, or rather violet-brown in colour, and elongating more gradually. Internally its flesh is paler, and its flavour somewhat inferior.

No protection against cold is afforded either in winter or spring. Nor are the trees ever watered. It must, however, be remembered that the dense shade of the trees themselves checks evaporation, and the humidity of the marine atmosphere supplies the leaves with nourishment. Manure both solid and liquid is used, not at any particular period, but when it comes readiest to hand.

Pruning is confined to thinning out the branches when they become too long and bare; no suckers are allowed to grow. The embryo fruit of the second crop is never removed, and Mr. Botting informs me that when it falls off in spring, another embryo is often found in the same axil, and this swells off and ripens. The trees begin to bear well when about seven years old. One has numbered several centuries. The wood is generally short jointed and fruitful, and the average height of the trees about ten or twelve feet. The fruit is protected from birds by bags, at least, as far as the bags will last. The gathering is from the end of August to the middle of October, and the quality most excellent. Prices—largest size, 1s. 6d. a dozen; smaller, 1s.

From the above accounts some hints may be derived for the successful culture of the fig, but I am not aware that anything has been elicited which differs from the practice recommended all along in THE COTTAGE GARDENER, and also in a short, but comprehensive article, which appeared in the Gardeners' Chronicle, under date 13th of April, 1844. A substratum of chalk rubbish with a shallow border (I find fifteen inches ample), of a somewhat holding, and not too rich soil, seems to be the first requisite. Pinching the shoots, though unknown at Tarring, where the greater part of the trees are tamed by age, and space is no object, will always be found necessary where the tree is wall-trained, and where, for the convenience of winter protection, the branches must be kept within stated bounds. Near Paris it is usual to bend down the boughs in autumn, and to cover them with about six inches of earth. This is removed at the end of February; weak shoots are then cut out, the terminal buds of the stronger shoots taken away, and half the wood buds, as they push, rubbed off.

Those who desire to prolong the succession of fruit, can easily obtain an early crop, by keeping a few small trees in pots in a cold pit. Thus treated, they ripened with me this year the first week in August.—G. SPARKES, Bromley, Kent.

NEW PLAN OF BEE-KEEPING.—No. 2.

FOR the benefit of the cottage apianian I will, as briefly as possible, explain the outline and peculiarity of my new system of managing bees, as advocated in the earlier

chapters of *The English Bee-keeper*. It consists, as I have there stated, in four principal points, which if not severally, are collectively at least, and as a system, I believe entirely new. They are these: *first*, the perpetual maintenance of a youthful and vigorous race of queen-bees; *secondly*, the entire suppression of all after-swarming, or casting, as it is called; *thirdly*, the plunder every year of the *first* or *prime* swarms, instead of keeping them, as under the present system, for winter stock; and, *lastly*, the preservation of the same stocks for swarming purposes, almost exclusively, from year to year. The two last points are the more peculiarly new features of my system.

Now the way in which all these points are effected I proceed to explain. In the first place, it will be proper to have at starting one or more vigorously working stocks in large and strongly-built hives;—no matter what the shape or material, if only sun, cold, and rain be effectually kept out. My own hives are made of good straw in rather thicker bands than usual, *well put together*; they have a flat wooden top with one or more holes in it, and are worked on a stout wooden hoop at bottom. I prefer the shape of Mr. Golding's Grecian hive (but rather more decidedly wider at top than at bottom); make use of bars, and paint my hives well every year, as I intend them to last many seasons. Every hive has also a suitable bottom-board distinct from the pedestal, with eye-screws fastened in it for facility in weighing; each hive is also surmounted by a large milk-pan, which in its turn is covered by me with a neat and thick hackle worked on a hoop. The dimensions of these hives are fifteen inches in diameter, by eight or nine inches in height, all inside measure.

Let us suppose that a strong swarm* of the preceding summer is chosen for experiment, which has well survived its first winter, and shews signs of early and vigorous breeding. To insure success it is desirable that the queen should be still in her prime, the more so if the swarm which issues from it is to be reserved for future stock. In this case let it be put into a hive of the dimensions just given; but any large hive will do. This stock so formed I recommend *never to be plundered*, save at the end of six or eight years, when the comb wants renovating; what may then be done, is to drive or fumigate the bees when autumn comes, cut out the combs, cleanse and purify the hive, and lay it aside for future use: this treatment may be adopted till the hive falls to pieces from age. The preserved bees may be joined to some neighbouring hive, *after the queen has been destroyed*. The common practice among cottagers at the present day, is to take these hives, keeping in their stead the first swarms of the year. This practice has originated wholly in mistake; the prevailing notion being that prime swarms in general thrive better than the parent stocks would do. On the contrary, provided the stocks be not too old, my experience leads me to a quite different conclusion. And the reason is clear, for first swarms generally have old queens, while the parent hives, if they have swarmed, *always* have young ones. It is evident, therefore, that a systematic reservation of the swarms, and a destruction of the old hives at the same time, has a tendency to ruin the prosperity of every apiary managed according to this plan. But to return; supposing the swarm of which I have been speaking is not needed as a permanent stock, instead of hiving it in a large hive, I would advise its being put into a much smaller one,—say twelve inches in diameter, by nine inches high. Mr. Payne's hive, both in size and construction, would be about the thing. It will, however, have to be surmounted by another hive, of similar dimensions, a few days after its establishment; if it have a bit of comb in it so much the better. The object of this double hive is to ensure the collection of a purer honey in the *super* than would be stored in a single hive of large size, to every part of which the queen would have access for breeding.†

Now, I advise that the new swarm (whether in a single or double hive) be put upon the same stand, and in the identical position, which the parent hive had previously occupied; the latter will then be removed to some other place. By

* I should prefer, for this purpose, a two-year-old stock, which sent forth a swarm the previous summer, if strong and healthy, because it will be sure to have a young queen.

† Of course, where only one hive is used, it should be proportionably large.

adopting this treatment, the population of the new swarm will, in a few days, be amazingly increased, because all the bees in the old hive (with few exceptions) will flock to it, as many, at least, as have been abroad will, on their return home from their first expedition into the fields, after the issue of the swarm, naturally fly to their old and well-known locality. Thus a double advantage will be the result; first, as is reasonable to expect from the increased population, there will be a larger quantity of honey collected than usual, and, secondly, the issue of second swarms or casts (which, in this country, are of little value,*) will, in most cases, be prevented.

When the season of plunder arrives, instead of taking up the casts and old hives, as is the present custom, I advise that the *prime-swarms* become the spoil of the bee-master, i.e., as soon as he has brought his apiary to its full complement of hives. They are those swarms, be it observed, which contain the purest honey, and they are always the heaviest. At the same time, the old stocks will (if no second swarm issue from them) become very heavy during the summer, and be in magnificent order against the winter; moreover, I may repeat, they will, if they have thrown a swarm at all, of necessity have young queens. The bees of the plundered swarms may be saved with advantage, and united to the stock from which they issued originally, or to any other neighbouring hive, after getting rid of their queens.

This, in a few words, is the system of managing bees, which from experience, as well as persuasion, of its value, both in respect to simplicity and profit, I heartily recommend to the notice of your readers. It has been said of it that it introduces a complete revolution in the management of bees as at present conducted. This may be true, but its novelty is no objection to it, unless it prove itself unsuited to general practice, which I am confident will not be the case.

In my next paper I shall unfold the experience which, I think, has fairly justified the high opinion I entertain of this new plan of treating bees, which originally suggested itself to me as a mere conception of the mind.

A COUNTRY CURATE.

* Our cottagers, at present, generally consider themselves fortunate, and their apiary prosperous, if it have produced many swarms in a season; this, too, is a mistake. It is to be hoped that in future *weight, not number*, of hives will be the acknowledged testimony of success, and that our cottagers will be pointed out as model bee-keepers, in proportion as they have many *prime-swarms* and few casts to exhibit in their gardens. Occasionally, it is true, when swarming takes place early, and casts are forward and large, an apiary may figure high both in number and weight, but this is the exception, not the rule, as every bee-keeper knows full well. In general, either the cast is of little value, or the old stock has become weakened overmuch by a too great drain of its population. This is especially the case where more than two swarms issue from the same hive.

TO CORRESPONDENTS.

HABROTHAMNUS ELEGANS (Rev. J. R.).—It is not worth a groat the dozen, but if you like it, you may have it in bloom four or five months in the year. Ours has been in bloom since last March, little dreaming that it is destined to the faggot-pile by and by. If yours is against a wall train the shoots at full length, and stop all the side-shoots when they are three inches long. If it makes strong shoots from the bottom, or from any part of the trained ones, rub them out altogether, and next summer it will flower all the season. *Fuchsia spectabilis* has disappointed hundreds, and we cannot just yet say the way to get it into good condition. The best we have had been in the open border all the summer, and it is just potted and brought into the greenhouse. We cannot answer letters by post, nor is it desirable, for questions suggest ideas useful to thousands; and as an instance, few would buy *Habrothamnus elegans* after the above answer.

FOREST TREES AND SHRUBS FOR CHALKY SOIL (An Early Subscriber).—Birch, Beech, Spruce Fir, Spanish Chestnut, Scotch Fir, Larch, Elm, do very well with us on steep calcareous banks. The different *Thorn*s are our best flowering trees on that kind of soil. *Lilac* does very well, and so does the *Gaulther rose*, *Deutzias*, *Philadelphus* of sorts; also *Spiræa*, *Laburnum*, *Double-flowering Cherry*, and the different *Cotoneasters*. *Furze*, or *Gorse*, is quite a chalk plant, and the *Broom* tolerably so, as are the common *Clematis*, or *Traveller's joy*, and the *Cotoneaster microphylla*. After these plant any common things, they sell cheap in the nurseries. All the *Laurels* and *Laurestinæ*, with the evergreen and Asiatic *Berberis*, do remarkably well on such soil.

INSECTS ON BULBS (Burnaby).—The insects which are in great numbers in your soil are a species of *Julus*, or Snake Millepede. It is doubtful whether they attack either the bulbs or roots of plants until decayed by previous disease. However, if you open the soil where they are, and mix it with fresh slacked quicklime, you will destroy them.

CATTLEA MOSSES DISEASED (Ibid).—The brown-blotched leaf of the *Cattlea* enclosed is suffering from canker, caused through too much water being allowed to rest upon the leaves, at some time within the last two months. The best remedy is to shake every particle of mould from it, and fasten it on a clean block. This will cause the plant to

push out vigorously, make new shoots, and throw off the disease in a very short time.

GERANIUMS FOR BEDS UNDER SHADE (A Subscriber).—The *Pink Ivy-leaved*, if it will suit the rest in your parterre, is the best thing we know of to look well under the shade of trees. *Dandy* is the next best *Geranium* for its leaf; *Grossulariifolia* the third best. But better than all, the *Golden Chain*, which would be at home in the shade, and yet it stands the fiercest rays of the sun.

LILIUM EXCELSUM (A Subscriber).—We do not know your plant by that name; from your account we think it is a hardy one, and the little bulbs on the stems may be taken off now and planted round the side of a pot, in sandy loam. As soon as the bottom leaves turn yellow, withhold water, and let it go to rest in the winter, and next April plant them all out-of-doors, and you will probably see flowers, and learn more about it.

FANCY DAHLIAS (Rusticus).—They are liable to run to self, or one colour, in hot wet summers, and when planted on rich, strong, or well-manured land; but the self-colour is not permanent. It is best, however, not to plant the old roots, but to force them in the spring, and get up a stock from cuttings. Mr. Barnes, of Stowmarket, showed us his system, by which he keeps all Dahlias down to three feet, or thereabouts, and we can assure you there is not a better Dahlia grower in England. He plants them very wide apart—five feet, and more in some cases—every plant is a perfect specimen all round; the knife never touches them. With the finger and thumb he begins to disbud them as soon as the first side-shoots come out; he never allows but one eye to a joint; the opposite eye is rubbed out all over the plant, and sometimes the two eyes are rubbed off, where the shoots grow close, but that is seldom the case with him; all weak flower-buds he destroys as soon as he sees them.

BOX-EDGINGS (Julius).—What is said usually about March being the best time to plant box-edgings, is only founded on the customary practice of dressing gardens in the spring. October is a better time, and November is even better than March, for planting dwarf box, only it is not fashionable to do so. But box-edgings may safely be planted any month or week in the whole year. We planted many yards of it at the end of last June, and without any roots, and not a sprig failed, although the edging is but four feet from the bottom of a west wall, in a high and dry situation.

BLUE LARKSPUR (Thornycroft).—The best blue one we have seen for many a day, and were it not for the light eye in the centre, it is all we want; pray save seeds from it, and by picking out the best blues from the seedlings, for another season or two, you will establish the old variety. Many thanks for the trouble you took.

BEES—KEEPING HONEY IN THE COMB (Twickenham).—Our correspondent says—"I made two doubling boards, and placed two stocks of bees thereon; in May I gave them the two extra hives, which I find now were much too large; I removed them to-day, and found about 18 lbs. of honey and comb in each hive, no pollen or brood, some of the combs filled on one side only, some unsealed, and some empty. I am thinking of pasting paper on the bottom and sides of the hives, and letting the bees have them again next February, as I do not like to destroy the comb, and the stocks have now sufficient food for the winter. I wish to know if the honey will keep good under these circumstances?" Yes; the honey will keep remarkably well in the way you propose. Keep the hives in a dry place, and in the same position they stood while filling: the combs will be of great use to the bees next year.

BEES—BEE-GLASSES (Vicarius).—Payne's improved Bee-glasses, which are open at the top, are not intended to be the first glasses put upon a stock-hive, but when a small bell-glass has been put on and partially filled, then an open glass is to be put between it and the parent hive.

RASPBERRIES AND STRAWBERRIES (B. B.).—See what Mr. Errington says to-day.

BOX, OR BARREL CHURN.—More than one correspondent (J. K., A Beginner) having written to us for our opinion as to the best churn for a small dairy, we should be glad to know the experience of some of our readers, and shall be much obliged by their writing to us on the subject. We wish to compare their experience with our own.

GUANO (W. H.).—This is one of the most powerful of manures, and will be beneficial on any soil if properly applied. It is not, as you seem to think, to be applied indiscriminately over your "fruit and vegetable garden of four acres," but should be given to each crop as it is inserted, and that in a very diluted state. Our own experience fully confirms the following experiments:—Mr. Maund applied it to *strawberries* once a week in a liquid state (four ounces to a gallon), it made them very vigorous and productive; but sprinkled upon some young seedlings of the same fruit it killed them. Two ounces per yard (5 cwt. per acre) were sprinkled over *onions*, and they doubled the untreated in size. *Potatoes* manured with one ounce and a half per yard, were rendered much more luxuriant than others having no guano. *Brussels sprouts* were half-destroyed by being planted in immediate contact with nine parts earth and one part guano. *Geraniums* were greatly injured by liquid manure of guano (four ounces per gallon), but plants, of various sorts, in pots, watered only with guano water, half-an-ounce to a gallon, have flourished astonishingly; none have failed. Mr. Rendle and other persons record, as the result of dearly purchased experience, that where Guano has failed to be beneficial, or has been injurious, it has been applied in quantities too powerful for the plants to bear. In a liquid state, half-an-ounce per gallon, and given to growing plants once a week, it never fails to be productive of vigour.

ROSES FOR TRELLIS (A. B. C.).—The six best for your verandah are *Félicité perpetuelle*, creamy white; *Laura Darouat*, pale pink; *Gracilin*, pink; *Inermis*, red; *Myrianthes*, bluish; and *Princess Louise*, bluish-white.

ASPARAGUS BEDS (T. P.).—There is no possible mode of culture whereby you can make plants of Asparagus, three or four years old, planted now, bear next season. The proper time for planting is April, just as they commence growth. We have known such plants cut from in the summer of the following year, but the heads were small, and there had been, from the time of planting, and during all the periods of growth, an unlimited supply of liquid manure. *Potatoes*, plant at the end of October, and grow none but early-ripening sorts, such as *Forty-folds*, *Orionians*, *Ash-leaved Kidneys*, and *Ryloff's Flour-balls*.

NIGHT-SOIL AND PEAT CHARCOAL (W. W.).—This is a very powerful manure. It may be, and indeed ought to be, dug in fresh. It will not do for potting purposes, unless it be in small quantities to potted Roses. To your standard Roses you may apply it, about a peck to each tree, and pointed in round their roots.

NAMES OF PLANTS (C. James).—Quite impossible to tell the name of a *Verbena* from single pips dried between blotting-paper. (*Queen Mab*).—Your plant is *Penstemon glaberrimus*. (*A Cottager*).—The fire-leaved specimen is the Red Virginian Cedar, *Juniperus Virginiana*; and the other the Small-leaved Cotoneaster, *Cotoneaster microphylla*. To your *Grapes*, just ripening, give a little fire-heat during the day, with plenty of air at the same time. (*A Subscriber*).—The three flowers are of *Epidendrum cochleare*, and the single flower of *Cattleya Forbesii*, old species not much valued now.

CYCLAMENS THROWING UP FLOWERS BEFORE LEAVES (A Parson's Wife).—They have been kept rather dry, and the roots have in consequence suffered a little; roots planted in a dormant state are frequently apt to do so, especially if placed in the heat of a sitting-room.

BRUGMANSIA SANGUINEA DROPPING ITS LEAVES (J. M. F.).—A few of the oldest of these drooping, few gardeners would trouble themselves about. It likes rich feeding when in a pot. Though you state the contrary, we should attribute the cause to an occasional neglect from the water-pail, and to a want of sufficiency of light and air. The plant that is so green, very likely has had more of these advantages, as well as the addition of the leaf-mould. Shortly after this season, we would not care if they became deciduous altogether, for then they could be wintered in any out-of-the-way corner safe from frost, and the rest would cause them to bloom all the finer next spring and summer. Of course, if they are to be bloomed on in autumn and winter, they must be kept green.

LEONOTUS LEONORUS LOSING THE LOWER LEAVES (Idem).—This arises from similar causes; and if it has bloomed well it is not much to be regretted, as it may shortly be cut down, or, when more exhausted, left as a partner with the *Brugmansia* until fresh growth commences in spring. If in full bloom, give plenty of air, water, and warmth. The reason of the leaves of plants getting yellow, in general, and chiefly as having reference to an *Ipomoea Learii*, planted in the front border of a greenhouse, is too large a subject to be treated of here; but we may mention that it takes place partly from exhaustion, partly from drought, partly from being deprived of a sufficiency of light and air, and partly from the same cause that is bringing a few grey hairs on our head. In the circumstances, and considering the season, we do not agree with you, that the yellow leaves on the *Ipomoea* were caused by excess of moisture; rather the reverse. Moisture will only produce such an effect when the soil is sour and sodden, and the temperature is too low for healthy action. If your border was tolerably drained, neither of these causes could operate a fortnight ago, and the broad leaves of this *Ipomoea* soon throw off a great quantity of moisture by evaporation.

PROPAGATING-HOUSE AND MELON-PIT.—A *Subscriber* will see that his case has met with attention.

RIDGE AND FURROW, AND SPAN-ROOFS (W. L. K. R.).—See what Mr. Fish says to-day.

BEDDING PLANTS (S. S.).—We know the garden in Essex to which you allude, and it is very likely that the *Ageratum* and *Heliotrope* are well managed together, by training both, or, at any rate, the *Ageratum*; but a much better plan is to plant *Verbena Duchess Aumale*, or *Haidee*, to give more flowers in a *Heliotrope* bed. The little red *Cuphea* does not do with the *Zauschneria*, being too dwarf. Every one wonders to see the *Zauschneria* do so well with us; and the secret is, to take it up every April, divide it as we do the *Campanulas*, and plant the pieces quite thick. This keeps down too much foliage, and increases the number of

flower-spikes. The *Carolina Fuchsia* was recommended by Mr. Beaton till he was beaten by it; if you succeed with it, let us hear from you; nevertheless. *Globosa major*, or an old one called *sanguinea*, will best suit your purpose; we saw a beautiful bed of the latter the other day at Chatsworth, but it will be difficult to meet with in the nurseries; and we are surprised that any of our readers wish us to recommend one nurseryman more than another. There is not a true blue or a good yellow *Verbena* to recommend. *Alona celestis* is not a bedding plant, but a half-hardy plant to place against a wall; and when old, flowers freely—not otherwise. *Chenostoma polyantha* is an uncertain thing at the best. An order to a London nurseryman would procure the plants you want. *Verbenas* have been much mildewed this season, and *Roses* seldom escape it; but it is now too late for the usual remedy—sulphuring them.

C. R. R. AND OTHER CORRESPONDENTS.—If a question reaches our office on a Saturday, it will be answered, except from unforeseen circumstances, in the next Thursday but one number.

OAK-TREE MOVING (Vicarius).—The beginning of November is the best time to remove this pretty oak, and its safety depends on the roots. If it has many small roots, have it moved this autumn; if not, prepare it for next year. Let the ground be opened four feet from the stem, first removing the turf carefully, and as deep as twenty inches; then, with a three-lined fork, remove the soil very carefully all round until you are within eighteen inches of the stem, and save every root you meet with. By this time you will see if they are numerous and small, or having small fibres on the sides; if this is the case, you may safely remove it, first reducing the diameter of the ball to eighteen inches or two feet, then working under it to find if there be a tap-root, which you will cut through, and the tree is ready to move; if, on the other hand, the roots are few and not fibry, cut the side ones to within two feet of the stem (the tree is young and not large), and let the tap-root alone; fill in the loose soil, and let it remain twelve months; by that time the cut ends will have made abundance of little roots fit for removal.

WHITE LILIES (C. J. P.).—We shall have a similar arrangement ready to appear next week. Meantime, deep, rich, light loam is the best for the White Lily, or loam, peat, and leaf-mould, or very rotten dung. They grow remarkably well in good peat alone; but if the situation is dry, they are more likely to suffer from a hot summer. The White Lily (*Lilium candidum*) should be grown much more generally than it is, but on thin dry soil it does not succeed well, and in any soil it is one of those plants which delight in large doses of weak liquid manure from the time the flower-stems rise.

PLANTS (Carrig Cathol).—*Gardenia florida* will do well in your greenhouse, where the *Hoya carnosa*, and the *Dichorisandra* (we do not know *aurata*), and *Allamanda nerifolia*, may live there. We cannot make out the name of the fourth plant. Your *Picotee* is pretty for a border-flower. We will inquire of Mr. Beaton. What you call an *Althæa*, is *Hibiscus syriacus*.

ANGOLA RABBITS.—No one wishes to know where he can obtain these, and whether they are valuable.

LIQUID MANURE FOR ROSES (C. R. W.).—This may be made from the dung of sheep, deer, or horses.

DISEASED POTATOES (Ibid).—These have been used for seed with perfect success, but we should not select them for the purpose. The earliest time for autumn-planting potatoes is the end of October.

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WEEKLY CALENDAR.

M D	W D	OCTOBER 9—15, 1851.	WEATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
9	Th	Hazel leaves yellow.	29.950—29.891	56—32	S.W.	02	15 a. 6	20 a. 7	4 54	14	12 35	292
10	F	Oxford and Cambridge Terms begin.	30.037—29.933	56—37	N.	06	17	18	rises.	☺	12 51	293
11	S	Old Michaelmas Day.	30.153—29.915	51—34	N.	02	18	16	6 a. 16	16	13 6	294
12	Sun	17 SUNDAY AFTER TRINITY.	30.357—30.241	53—27	N.	—	20	13	6 39	17	13 21	295
13	M	Elder leaves fall.	30.306—30.151	49—39	W.	—	22	11	7 3	18	13 36	296
14	Tu	Lady-bird retires.	30.091—29.933	50—35	S.W.	—	23	9	7 34	19	13 50	297
15	W	Gosamer abundant.	30.069—30.030	54—24	N.	—	25	7	8 13	20	14 4	298

We have had occasion to mention more than one writer on the cultivation of the soil, who reluctantly, yet bravely, laid down his pen, and grasped his sword, during the perilous struggle between the first Charles and his Parliament; such characters ranging, as they did, on opposite sides, add to the evidence that that strife was based on principle. Which of them we think were in error, has not, in these pages, a fitting place for discussion; but of this we are quite sure, both the great parties were equally wrong, when as in turns they triumphed, so in turns they became persecutors. No sooner had the orange flag been borne in triumph over the field of Naseby, than the work of confiscation began, and many were the families, who, nursed in affluence, and used to no labour, but that of enduring uninterrupted pleasure, were ejected from their homes, and endured those privations which are so acute, because so unaccustomed. In Ireland, the strong hand of the Commonwealthmen grasped widely and unsparringly, and the lands thus seized were distributed among the most meritorious of their English partisans. Amongst these was **WALTER BLITH**—"Honest Captain Blithe," as he is called by his contemporary, Dr. Beale, but of whom we know little more than we glean from his writings. That he bore arms with the Cromwell party is certain, from the dedication of his works, and from an address to the soldiers, to which he subscribes himself "your quondam brother, fellow soldier, and very servant." The result from thus inoculating Ireland with English skill, is thus told by one who was born soon after Blith died—the Rev. Walter Hart:—

"Ireland had a wretched method of husbandry, and strong prejudices in behalf of that method till about the middle of the last century, when *Blithe* alone (who then lived in Ireland), was sufficient to open mens eyes by his incomparable writings. But the truth is, that he, and many other English officers and soldiers of *Cromwell's* army, being enriched by military grants and settlements, first laid the right foundations of husbandry in that kingdom; since which period, a certain spirit of improvement, more or less, has been promoted and carried on with such zeal and constancy by the nobility, gentry, and clergy, that they may seem to cast a silent reproof on the nation that was their first instructor. So that if they go on thus for one or a couple of centuries more, and are, at the same time, powerfully and generously encouraged, it may perhaps be said, with no small degree of propriety—

Thus old *Romano* bow'd to *Raphael's* fame,
And scholar of the youth he taught became."

How well Blith was qualified for improving the cultivation, is shewn by the volume which Professor Martyn justly terms "an original and incomparable work for the time," and which is entitled: *The English Improver, or a new survey of Husbandry*. It appeared in 1649, and had for its author "WALTER BLITH, a lover of ingenuity;" at least, so states the title page, and a few lines from some commendatory doggerel at the commencement epitomizes its contents—

"Go tell the world of wealth that's got with ease,
Of certain profit (gain most men doth please),
Of lands improvement to a treble worth,
A five, a tenfold plenty's here held forth;
The greedy Land-lord may himself suffice,
The toiling tenant to estate may rise,
The poor may be enriched, England supplied
For twice so many people to provide;
By floating dry, and purging boggy land,
The plough old pasture betters to your hand;
Directions to inclose to all men's gain,
Minerals found out, Land rich'd with little pain;
Woods order'd so, in few years yield such store,
So large, so good, as you'll desire no more."

OUR readers in every district of the United Kingdom will oblige us by sending us drawings of the Gardening Implements used in their neighbourhoods. We purpose to have all such as we think desirable of adoption engraved, and published in our columns. Mr. Barnes has furnished us with his hoes and scarifiers, and one or two other excellent implements are ready for our draftsman, all of which shall be inserted in due time. Let no one think the tools he has been accustomed to are "known to everybody," because we can assure all who do so think, that those they call "everybody" usually includes no greater proportion of our population than a

It is clear, also, from the pages of this volume, that what is now known by the name of "tenant right," is no new suggestion, for Blith says—"If a tenant be at never so great pains or cost for the improvement of his land, he doth thereby but occasion a greater rack upon himself, or else invests his landlord into his coat and labour which, occasions a neglect of all good husbandry;" and the suggested remedy, as now, was a valuation of the improvement, or an increased length of tenure. He also asked "The high and honourable Houses of Parliament," to whom he dedicated the volume, for some law to protect irrigation, for he says:—"I made a good improvement upon a little brook above half-a-mile above a water-mill. I turned the water-course upon my land, and turned it again into the course half-a-mile before it came unto his mill; he sues me at common law, and recovers against me; my improvement was from six load of hay to twenty, his prejudice little or nothing, for which no composition would serve, but the ruin of it, which by this verdict was accomplished."

In 1652, he published *The English Improver improved, or the Survey of Husbandry surveyed*, with an illustrated title page, well applicable to himself as a retired officer, being a picture of soldiers in arms, and beneath, with their swords beaten into plough-shares, and their spears into pruning-hooks. It shews, also, the author's discreet observation of the times, for as his first publication was dedicated to the Parliament, this is similarly addressed to Cromwell and the Council of State. It contains additions for the culture of Clover, "St. Foyne or La Lucern," Liquorice, Hops, Hemp, Flax, and Orcharding.

INSECTS.—We were lately shewn some small insects which had been a source of no small irritation to the exhibitor's family, and we recognized them as the *Spider Fly*, or *Swallow Fly* (*Craterina hircundinis*). Whence they came was easily explained, for the caves of our friend's residence sheltered a colony of swallows, and in their nests these flies are hatched.

This is only one among thousands of instances of insect instinct (which is reason with a larger name), for the eggs, or rather egg-like pupæ require a greater and more uniform heat than they would acquire by open air exposure, therefore, they deposit them where they are hatched by the heat of the birds, which sit upon them along with their own eggs. There is little doubt that as their near relative, the *Forest Fly* (*Hippoboscæ equina*), torments the horse, so this *Swallow Fly* is a vampire to the Swallow. Our friend was not singular in being troubled by them, for Mr. Spence relates, that though its natural food is the bird after which it is named, yet it has been known to repast on the human species. One found its way into the bed of the Rev. R. Sheppard, where it first, for several nights, sorely annoyed a friend of his, and afterwards himself. Our drawing shows it of the natural size, and magnified. Its body is yellowish.

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 60.3° and 43.2° respectively. The greatest heat, 71°, occurred on the 14th in 1834, and the lowest cold, 29°, on the 9th, in 1829. During the period, 86 days were fine, and on 82, rain fell.



small section of a county. Every district almost has a peculiar *wheelbarrow*; many we know of have peculiar *draining tools*; the difference in *spades* is very great even in adjoining parishes; *hoes* we have already shown varieties of, and there are many more. Now, we should like to have drawings of all these, and let no one mind how rough his drawing may be, because a draftsman soon puts that all right. To increase the utility of such drawings, it is very desirable for them to be accompanied by particulars of the size of every part, and the nature of the soil of the district where the implements are used.

A NORFOLK physician, who loves other arts and sciences besides that immediately associated with "The Gold headed Cane," writes to us as follows:—

"Thetford may be considered a place with less quantity of rain than other localities. We are not a woody country; besides the soil is light and porous, and evaporation rapid. This is shewn by the following table of averages for 1850:—

	Barom.	Therm.	Rain.
January	29.95	35½	1.25
February	29.60	42½	.38
March	30.07½	41	.03
April	29.87½	50½	1.42
May	29.90	57½	2.25
June	30.07½	60	.15
July	30.02½	68	3.03
August	30.15	66	2.34
September	29.95	65½	1.00
October	29.87½	67	1.44
November	29.60	45½	1.66
December	29.87	41½	1.30

My experiments lead me to ask why you do not draw attention to the improvement of the growth of flowers and vegetables, by adding to the soil more of the elements of the plants grown. No one can excel the beauty of the *Verbenas* and *Pinks* that are grown here, which are produced by sprinkling a very little *Nitrate of Potash* (Saltpetre) about the roots. I am persuaded, if gardeners would ascertain the elementary constituents of their productions by chemical analysis, it would bring the objects of their industry to the highest pitch of perfection, and amply reward them for the expense. I find this by my little farming. I have not enough of manure, but supply the deficiency by elementary substances, and I grow as good, if not better crops than my neighbours, at half the expense. It is difficult, however, to put any one out of his accustomed routine. I hear of some complaints of the potatoes; the peculiarity of the soil is the cause, and not the atmosphere; the seed degenerates by frequent setting, and the exhaustion of the soil is the cause. I have half-an-acre of potatoes on a soil which has not grown them for years; they look (August 20th) well and healthy, and promise a good crop; but my neighbour is troubled with the disease, the land being used to the crop."

We can assure our valued correspondent, who we hope will furnish us with the result of his experiments, that we are not unmindful of the importance of saline manures, and, indeed, formerly attributed more importance to them than experience has shown them to possess. Still, we can assure our readers that saline manures are most valuable assistants to vegetation, and why they are so is demonstrated by the following facts.

The *sap* of all trees contains acetate of potash; *Beet-root* contains malate and oxalate of potash, ammonia, and lime; *Rhubarb*, oxalate of potash and lime; *Horseradish*, sulphur; *Asparagus*, super-malates, chlorides, acetates, and phosphates of potash and lime; *Potatoes*, magnesia, citrates and phosphates of potash and lime; *Jerusalem Artichoke*, citrate, malate, sulphate, chloride, and phosphate of potash; *Garlic*, sulphate of potash, magnesia, and phosphate of lime; *Geraniums*, tartrate of lime, phosphates of lime and magnesia; *Peas*, phosphate of lime; *Kidney Beans*, phosphate of lime and potash; *Oranges*, carbonate, sulphate, and muriate of potash; *Apples* and *Pears*, malate of potash; *Grapes*, tartrate of lime; *Capiscums*, citrate, muriate, and phosphate of potash; *Oak*, carbonate of potash; and the *Lilac*, nitrate of potash. Let no one fancy that the salts are a very trivial proportion of the fabric of plants. In the *Capiscum*, they constitute one-tenth of its fruit; of carrot-

juice, one-hundredth; of *Rhubarb*, one-eleventh; of *Potatoes*, one-twentieth; whilst of the seed of the *Lithospermum officinale*, they actually constitute more than one-half. Their constituents are as follows:—

Carbonate of lime (chalk)	43.7
Silica	16.5
Vegetable matter, phosphate of lime, &c.	39.8

These amounts are nearly as much of earthy saline matters as exist in human bones; but if we turn to the marrow, it only contains one-twentieth of saline matters; the blood, only one-hundredth; muscle, only one-thirty-fourth; yet no one will argue that these saline constituents, though smaller than those in vegetables, are trivial and unimportant.

To supply those salts to plants saline manures are generally beneficial, and often essential. An important consideration, therefore, is contained in the answer to the query so often put—How should saline manures be applied? Our answer is, that, when practicable, they ought to be applied frequently, in very small quantities, during the time of the plant's growth. No plan can be worse than soaking a seed in a saline solution, for the purpose of giving such salt to the plant of which it will be the parent. It is saddening the embryo with a superfluity totally useless to it, and if it does not injure the germination, most probably will be washed away before the roots begin to absorb such nutriment.

GARDENING GOSSIP.

THE *London Floricultural Society*, on the 23rd ult., had an extensive display of *Dahlias* for competition in class-showing, and many of them were exceedingly well-grown. A fancy flower, exhibited by Dr. Bushell, was a far better variety than anything there of the class, and we fully expected it would have had a certificate, but it appeared that the Doctor declined the honour, perhaps because he, being an active member, might be supposed to be favoured. The trade is getting shy of giving large prices for new things, and as Dr. Bushell had no encouragement to sell the stock, he has adopted a step that will assuredly try a most important experiment—he intends to let it out himself at 2s. 6d., instead of the usual price of 10s. 6d.; this will try whether the public will appreciate, as it ought, a monstrous reduction; because this fancy flower, called, by the by, *Comet*, will be one of the best, and, to all appearance, the most certain. *George Glenny* and *Yellow Standard* maintained first places and second; in amateurs one was first, in nurserymen the other was first, changing places completely; in whites, *Snowflake* was first; in orange scarlets, *Sir Robert Peel*; in purples, *Sir Frederick Bathurst*; in rosy lilacs, *Fearless*; in oranges, the *Duke of Wellington*; a flower like *Toisson d'or*, but an improvement, obtained a certificate; the eye is sunk, and there is a doubt of constancy, but as it was there, it was a beat on *Toisson d'or*. A number of seedlings, of no account, were exhibited. A neat and well-formed *Hollyhock* was shown, and a stand of single flowers. *Pansies* were exhibited in two collections. The mode of class-showing

here is, the exhibitor puts up a stand of a hundred if he likes; the judges to go about and mark the best, second, and third of each class. This is a task which we would refuse to undertake for anybody. The exhibitors ought to be compelled to put their own flowers up in classes, and not be allowed to put more than one flower of a sort up; because the judges then go to a dozen scarlet, or purple, or white, or other flowers altogether, and can select the best with the greatest facility; whereas, having to walk about the room and fish out the different flowers that deserve prizes, and marking them as they stand, is more than any man can do properly, and more than they ought to be required to attempt. *King* was shown fine; the outcry against this, as it seems, was chiefly by those who have not got it, and want to get it cheap. We hope those who have got it will not think of its going out at less than half-a-crown. Many things were exhibited that may be worth notice another time. The meeting was called at twelve, the productions remained on the table till five—this is as it should be.

At the last *Oxford Show*, which was on the twenty-first anniversary of the society, the *Dahlias* were put up with great taste, and the majority of exhibitors had evidently conformed to the rules laid down in "The Properties of Flowers." Some stands were spoiled by the introduction of new flowers, many of which are far behind the old ones; but there was scarcely an eye to be seen in any of the collections, nor did the largest flowers win.

The cottagers' productions were beyond all praise, and they excelled the gentlemen and their gardeners in all the useful vegetables. *Fuchsias* were shown well for the season; *Cockscombs* capital; cut flowers, rich, and abundant. Two leaves of the *Victoria regia* were communicated from the Botanic garden, which is greatly improving in every respect: the leaves were between five and six feet over. A sumptuous dinner at the Maidenhead Inn, where sixty or seventy of the members and friends sat down, closed one of the most successful seasons. The people most behind in Oxford are the nurserymen, who want a spur.

The worst thing a society can do is to give way to individual whims and fancies.

Some men threaten to "withdraw, and all their friends," if a point be not conceded; others perpetually wrangle, if things are voted in a different way to that which they wish. The only straightforward way to carry on business is to discuss freely at full meetings; take the sense of the full meeting; and, the majority being divided, carry it through even at the loss of a member or two. Firmness in the executive is the only way to carry on business, and it is the bounden duty of the minority to give way.

We are glad to find that the *Gardeners' Benevolent Institution*, thanks for which are chiefly due to its indefatigable secretary, Mr. Cutler, is going on prosperously. The Queen and Prince Albert have consented to become its patrons, and Mr. Dickens will be the chairman at the next anniversary dinner.

E. Y.

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.

STAR-LIKE OSBECK (*Osbeckia stellata*).—*Gardeners' Magazine of Botany*, iii. 217.—This genus was named by the great Linnæus, in honour of *P. Osbeck*, a Swedish

clergyman and naturalist, and the present species was named, about thirty years ago, by Mr. Don, soon after



its introduction from the hot valleys of Nepal; and a coloured figure of it was given in *Edward's Botanical Register* in 1820; but in those days the growth of stove plants was much less understood than it is now, and more particularly that of the whole order of *Melastomads*, of which *Osbeckia* heads one of the sections. The consequence was, that this fine plant, like many others, was soon lost, and had there not been a description of it preserved at the time, we should now, very likely, hail it as a new plant, on its second appearance, when it was recently raised from fresh seeds, sent from India to the Glasnevin Botanic Garden, and through the well-known liberality of the curator, Mr. Moore, seeds of it were soon distributed to similar establishments; and a beautifully-executed figure of it is in a late number of the *Gardeners' Magazine of Botany*, from plants reared in the Apothecary Society's Garden at Chelsea. The flowers are large and very beautiful, of a rosy lilac hue, and not unlike the flower of a moderately-sized *Hibiscus*. The plant does not grow very large, or if it does under our modern system, it may now be had of a small size, for flowering, from cuttings. The leaves are opposite, in pairs, like most of the *Melastomads*, and they are strongly marked with ribs, or costæ, which run along from the footstalk to the point, another peculiarity of this order of plants. The opposite leaves, with prominent ribs from top to bottom, and the long-beaked anthers, are undecivable marks of a true *Melastomad*. From these distinct characters, Decandolle asserts that, "although *Melastomads* are composed entirely of exotic plants, and the order established at a period when but few species were known, it is so well characterised that no one has ever thought of putting any part of it in any other group, or even introducing into it genera that do not rightly belong to it."

To secure fine specimens of *Melastomads* in general, with broad handsome leaves and masses of brilliant flowers, it is necessary to give them a generous compost, large pots, and great heat and moisture, while they are in growth, and to keep them more dry, in a comparatively cool, dry atmosphere, when they are at rest. They must also be closely pruned of their last growths when they begin to grow, or a short time previously. They belong to the first order of the eighth class in the system of Linnæus.

B. J.

CULTURE.—At whatever time of the summer *Osbeckia stellata* flowers, it should not be encouraged to make any growth afterwards for that season, but merely enough of water and heat be given as will keep the leaves green to the end of October; and if they fall off for want of water after that, no harm will come of it, provided the roots, or soil, are not allowed to become quite dry at any period of its resting-time. Early in the spring it ought to be cut down to two joints of the young wood, or even to one joint, if the shoot is very small or weak. As soon as leaves appear, the plant should be divested of more than the half of the old compost, and the roots pruned in after the manner with *Geraniums*, and then put into the same sized pot, in two parts turfy-loam, the rest of peat, sand, and leaf-mould, then plunged into bottom-heat of 80°. To retard the flowering of the plant, pinch off the top of the shoots above the second joint of new growth. Cuttings made of the smallest side-shoots, taken off with a heel, when they are two or three inches long, will soon root under a bell-glass, in strong bottom heat. April is the best time for making them. D. BEATON.

[We hope to have this department thus improved in future, as now, by Mr. Beaton's cultural notes —Ed.C.G.]

THE FRUIT-GARDEN.

THE RASPBERRY.—In conformity to the wish expressed by some subscribers, we proceed to offer five minutes' advice about Raspberry planting and culture.

Soil and Situation.—In almost all cases that we have met with the Raspberry in a wild state, it has been an undergrowth to trees, where the latter were not too crowded; thus showing its partiality to a certain amount of shade, and fondness for decaying vegetable matter: hence the propriety of applying annual surface-dressings. With regard to shade, however, it is probable its being found in such very shady situations does not arise *entirely* from an excessive partiality for deficient light, but from the fact, that the Raspberry loves a permanency of moisture, in addition to a casing of vegetable matter; and it is scarcely necessary to add that the evaporation of moisture does not proceed so rapidly in woods as on the open plain. These things are named by the way, in order to show that various sites may be selected for them, according to the purpose of the planter, and the character of the soil; for it not unfrequently happens that one small garden possesses at least two distinct characters of soil. Still, it is not a matter of soil alone; Raspberries are very liable to depredations of various kinds, chiefly, perhaps, from bipeds, whether feathered or unfeathered. It somehow happens, that when Raspberries are planted near walks, everybody feels disposed to pluck them, from the stable-boy up to my lady's maid; and the gardener who should venture to protest against it, would be held up to the execration of the whole house-

hold as fitting to be fugleman to the illiberals. Now, to get up in the morning and find that the black-birds and thrushes, in combination with other bipeds, have been so industrious as merely to leave you the whitened stumps of all your fine white Antwerps, is a most disheartening affair. These things should be kept in mind when selecting the ground; for we will venture to assert that not much above half of the Raspberries grown in small gardens throughout the kingdom come to their end by fair means. It was a custom in former days to plant them in patches between the espalier or dwarf fruit-trees in the borders; but this we think most objectionable, for they are but too easy of access in the first place, and in the second, the suckers from their roots interlace through the roots of the fruit-trees, creating confusion, and standing frequently in the way of border operations. We here dismiss the case of situation of site for the present, merely observing that, in small gardens, we should prefer single rows to rows side by side.

A permanency of moisture, it was observed, was necessary, but we do not mean stagnant moisture. Any good sound loam will grow Raspberries well, but we have generally found them in the highest perfection in a rather dark and unctuous soil. It may be taken as a maxim, that where the Black Currant will do well, the Raspberry will do well also; and that where our ordinary Cherry-trees are eminently productive, neither of the former will be satisfactory. In the preparation of the soil, deep digging or trenching should, by all means, be practised; for although their roots do not descend to an unusual depth, yet it is well to have friends deep-seated, in the event of very dry weather during the fruit-swelling period.

The practice here is to remove the Raspberry plantation every fourth year; but this is done principally with a view to facilitate a proper rotation of crops. They are planted in parallel rows about four feet asunder. This allows half-a-yard on each side of the bushes for the extension of the branches and roots, and one foot in the centre, walking room to gather, &c. The parallel rows answer our purpose better than single rows; as in our rotation affairs we count on two rows being destroyed every year, and, of course, two rows newly planted; and the ground of the two broken-up rows furnishes good carrot or onion ground, or it may be some of the Cabbage-works. Thus the Raspberries are never old *altogether*; an infusion of fresh blood is necessary here, as in such crops as Strawberries, Asparagus, &c. In preparing the new Raspberry ground, some half-rotten manure, weeds, and leaves, are introduced towards the bottom of the trench, and, with the top spit, some more in a more rotten condition. The ground being now marked out by drawing a drill where the line is placed—for we would never be hampered by a line when planting things of any size—stations are marked where the centre of each patch is to be inserted, and a hole opened, by removing about three spades of earth; this is scattered over the ground at random. The operator then replaces that amount in the shape of some old compost, of which we generally keep a huge heap for general purposes, composed of rotten weeds, charred rubbish, old tan, old linings, or any of these, or all well blended together, bearing here the practical title of "priming;" and this we use to plant most ordinary fruit-trees in, to give them "a start," as practicals term it.

Next, we must think about the plants, and how to remove them, so as to insure a respectable crop the first summer. Now this must not be done anyhow. We do not like these "anyhow" plans. Give us the man who even takes care of his cabbage plants; not, however, the dawdling and tedious man, who gives four or five pokes with the dibble where a real good planter uses only one. This taking care in reality involves very little, if any, loss of time, although a shuffling workman will

instantly make it a plea for such; it is simply being in earnest, and using a little hard-headed thought over everything a man does.

Let the second week in October be our *period for planting the Raspberry*. Somebody will say, Why, the plants are not gone to rest; and we answer, No; and neither do we require it. The removal will, nevertheless, induce what is commonly termed rest.

In looking over the stools to provide the new colony with subjects, it will be found that it is very frequently possible to alight on a nice little group of suckers, evidently intended for an emigrant life; there will generally be about three brothers in these, and so sympathetic in character that you cannot move one without disturbing the rest. Let these go together, by all means; let them live and die together. Such may be removed carefully with a large clot of soil. However, these are exceptions, and the majority of canes will be single, and we plant three together. One, the strongest, we cut down to about four feet, a second to thirty inches, and the weakest to little more than a foot. Every possible pains should be taken in removing them with a ball of soil, and plenty of fibrous roots; and it requires a little careful handling on the part of the taker up, who must exercise fully as much care as the planter. The plants we insert as close to each other as their balls will permit, generally about nine inches apart, and the "priming" is filled in around them, not, however, quite filling the hollow, for as soon as planted, we mulch them for the year, and water liberally on the mulch. Some staking will be necessary, before they begin to grow in the spring, and care must be taken not to tread the ground when wet. If they are staked immediately, a crop of vegetables may be taken off the ground contiguous, taking care to have all cleared away by the dressing time, which will be in the ensuing May or June, and the ground must be kept clean in the meantime.

THE DOUBLE-BEARING RASPBERRY.—This is cultivated in a different way from the preceding, for it fruits on the annual shoot; that is to say, suckers produced in spring will fruit in the autumn. The canes are, therefore, cut nearly close to the ground in the spring, as soon as root suckers begin to appear. These may be planted at the same period as the other, making similar preparations, and when planted the cane may be left about a foot long, to draw the root into action. When, however, the root-suckers arise, say in June, the old stem may be cut down, and the plants receive a liberal allowance of manure water.

This kind must be kept thin, or they will not prove successful; we plant in a single row, using single strong plants, instead of planting in groups like the others, placing them nearly a foot apart. They are exceedingly liable to produce a host of weedy-looking suckers, and are by no means fit to grow near other fruit trees, which they would much annoy with their suckers. Much care is necessary at thinning-out time to keep these under, and a careful selection must be made of the suckers to be retained. We thin them in June to about four inches apart, and in the end of July or beginning of August it will be seen which are the bearing suckers, and all but those showing blossom buds may about that time be plucked clean away.

This kind of Raspberry might be cultivated to great advantage on a perpendicular rail of about four feet in height, having four rows of horizontal espalier wires tightly strained, and, indeed, the idea naturally occurs (when we have got thus far) of placing glass over it; the amount and expense would be but trifling. It is naturally a precarious crop, and seldom attains its full flavour, which it might be readily made to do under glass. However, we have a multitude of suggestions to offer as soon as we can get space to carry out the

subject; now glass is so cheap we shall doubtless, by-and-by, find glass structures of a simple character, depending for their warmth on early closing alone, coming into very general use. What is wanted in the meantime is some very durable and very light material, as a screen to throw over the roof, nothing thoroughly satisfactory having yet appeared in the market. Surely our manufacturers could soon bring out a material of the kind if they could once be induced to turn their attention to it, and we know of nothing better deserving a very high premium from some of our great horticultural societies.

In concluding the Raspberry for the present, we may remark on the kinds in culture. They are as follows:—1. Red Antwerp. 2. Yellow Antwerp. 3. Fastolf, red. 4. Large-fruited Monthly (Rivers). 5. Old Double-bearing Red. 6. Double-bearing White.

Of these, No. 3, is, doubtless, the best summer Raspberry at present known. It is quite as abundant a bearer as No. 1, much larger and finer, and, for aught we have discovered, equal to it in flavour. It has, moreover, the merit of producing a second crop occasionally; of bearing as early as No. 1, and of continuing a fortnight or three weeks longer in use. Whatever other kinds are planted, these may be considered the main dependence. No. 2 is excellent for dessert, and requires more kindly treatment, as it is not so robust as No. 3. No. 1, although a good fruit, is mostly superseded by No. 3. No. 4 is one of Mr. Rivers's new kinds, professing to be an advance on No. 3; of this we have had no experience. No. 6 is not much cultivated, as it is small and inferior.

R. ERRINGTON.

THE FLOWER-GARDEN.

THE cottage gardener will have more trouble and anxiety about his bed and border plants for the next three months than for the rest of the whole year. All his *Geraniums*, he knows by this time, will keep better over the winter, and do so much better next year, if he can save the old plants that have flowered with him this season, and not trouble himself with young ones struck from autumn cuttings. April and May, or, at any rate, early in June, is his best time to grow cuttings of *Geraniums* to stand the winter; while other gardeners, who have room and conveniences, prefer cuttings made in August or September, because they can put so many of them together into small pots, called store-pots, and so keep great numbers of them in a small compass in their frames and greenhouses; but that is quite different from the proper course of him who has neither greenhouse or pit, and, moreover, is only feeding his way into the secrets of gardening. The smallest cottage-garden in the kingdom is not worth the name of a garden, unless you see a Scarlet *Geranium* in it all through the summer. Others may have their *Queen's*, their *Lady Mary Fox's*, their *Lady Middleton's*, and all the other ladies and maids of honour that are so much prized for their gay colours and constant blooming; but ladies of all grades are expensive ornaments, and unless they are treated very kindly it is much better not to attempt to enjoy the luxury, but keep to such as one can manage in a quiet way, after Harry Moore's plan of drying and storing them away in winter; and for such I write this letter. The best way of all to save the Scarlet *Geraniums* is to begin early to prepare them, and this is a very good time. In the first place, there is a general and a very erroneous idea abroad, that these *Geraniums* should be taken up as soon as the cold weather sets in, because it is customary among gardeners to do so, as they can keep them green in pots or boxes for a long time, or all the winter if they chose; but for those who must depend on the drying and storing system, without

glass or pits, thus to act, will only increase their difficulties and the chances against their stock three-fold. I should not be afraid to risk all the Scarlet Geraniums in England out in the beds till Christmas, on the average of seasons, provided I had to dry them for storing like Dahlia roots; at any rate, ten degrees of frost would not alarm me much. Not a season has passed here for the last ten or twelve years without large numbers of odds and ends of the bedding-plants being left out in winter to take their chance until we were ready to dress the beds, and in the shrubberies and mixed borders they had it all their own way till the spring. No matter what kind of winter we had, I never recollect seeing them all quite killed, except to the surface of the ground, the roots and the collar of the plants generally escaped; and I have known the garden-men often taking these up in the spring when they were forking the borders, and get them up into good plants for the next summer after they had lost all their own pet plants which they kept in-doors; and it is a general remark with them, after a hard winter, that they must have a sharp look out after the old stools, or old plants, left among the shrubs, and yet, like their fellow-cottagers, the first puff of cold wind in the autumn sets them to get up their Geraniums year after year; and if example is better than precept in some things, it is the other way in this instance, their friends and neighbours thinking they cannot do wrong if they follow the example of old garden-men. What I would do under this state of things would be to cut down just now, and quite close, one-half of the shoots that grew this season, and let the rest remain as long as the frost allowed, and as soon as real danger appeared I would cut off all the remaining shoots of that season's growth, except a joint or two at the bottom, if the shoot was brown and well ripened, not without. Now, there is no more trouble in bringing a dozen or a score of Scarlet Geraniums down to this stage, out in the open border, to the middle or end of December, than there is in writing this letter. Then the worst part of the winter season is over for keeping plants. It is not the frost we have so much to fear and to guard against, but the damp. Any one, therefore, who can save potatoes from frost may preserve his Scarlet Geraniums, also, by going the right way about it, and that way is certainly not the usual mode of taking them out of the ground in a soft green state in October. Of course, when we can pot them, or one of them, the sooner in October we get them in the better, for then the branches are to be saved. But that is not the present question; but how best to keep Scarlet Geraniums like winter potatoes. Mr. Rivers, the great rose grower, has shown, years ago, that a large bed of Scarlet Geraniums might be saved any winter by packing six inches deep of moss in among and all round the plants, and I have proved the experiment, for I tried it on purpose, more than once; and does it not appear a very simple contrivance?

Until we can get rid of the old prejudice against keeping them out all the winter, let us say, that by the first of January we have them all dry and housed; but October is the time to begin, and that immediately; cut off half the shoots very near to the old stem. Think of something *quite dry*, that can be packed round them, on the first appearance of sharp frost; also some boughs, or something else to place over the tops—say a mat over some hoops, to keep the other half of the shoots green as long as you can. When they must go, cut them also, and then what remains is supposed to be well packed with something dry; beech leaves, from a shed or dry heap, will do well, with a few laurel boughs to keep them from blowing about. After this stage, consult your own convenience about the time of taking them in-doors, and if they are in by the turn of the new year, I shall stand responsible for the result of all this, if carried out

to the letter, to the very end of the old year; at any rate, I hope no cottager who reads this will be so foolish as to pull up his Geraniums in October, unless he is provided with means to keep them in pots all the winter. I have said already, that there is nothing gained in preserving them thus in a bed from year to year, because they go to leaf too much, unless the soil is very poor; and it is the same with Dahlias. By-the-by, I ought to have compared the keeping of Dahlias with this way of keeping the Geraniums, and the school way of comparing is just the thing to show it in the proper light—dry, drier, driest. *Geraniums*, dry, but not quite so; *Salvia patens*, drier, but not quite dry; and *Dahlias*, driest. So we see that, grammatically, Geraniums should not be kept quite dry after they are thus prepared and brought into the house. I have seen hundreds of Geraniums killed by over-drying in-doors, but they were five months in store; two months, at least, more than there was any occasion for. As early in March as possible they ought to have been brought to light, and by the first of April, I know not a Scarlet Geranium, thus kept over the winter, that may not be trusted out-of-doors at Inverness, not exposed to all weathers, however, but put into the ground in a warm, sheltered place, and covered over at night, in cold or frosty weather, just as good managers do at present with their Dahlia roots; they put their Dahlias out very early, and when they are well-sprouted, they take them up again and divide them, and then plant them out for good; this is the exact way that all Geraniums, which are kept dry for a time, ought to be managed. One of our correspondents wrote the other day to ask how to get *Tom Thumb* to flower, after being stored in sand in a cellar from this time last year, till June. The plants were quite bleached, and yet they soon recovered, and made fine plants, with healthy leaves, but little or no blossom. Now, *Tom Thumb* is one of the worst I know of to keep on the drying system; but it was not dried in reality, it was buried in dryish sand—that is, it was kept very uniform throughout, neither dry nor wet, and that is the happy medium. If those plants of *Tom Thumb* had been turned out-of-doors, sand and all, at the end of March, and a little dry hay placed over the sand, with some boughs or sticks thrown over it, to keep the hay, or fern, or moss, from blowing away, they would have been quite as safe from frost as when they were in the cellar, and every dry day the covering could be drawn to one side, and put on at night. A few years back, some people thought that some other people were *right mad*, as I have heard it said, for writing in books and newspapers, that potatoes ought to be planted in October or November, but no one would be afraid now to sit by the side of a man while in the act of writing the advice over again, for any doubts about his sanity or insanity; and so it will be about bedding Geraniums in a few years. We shall by that time hit on the best plan to save them in the beds till the fogs and frosts of November and December are gone, and we shall rout them out of all sorts of places by the end of March, and those who cannot save them for the three months of January, February, and March, why they ought to go without them altogether.

When I came to Shrubland, the garden and farm men began to ask me for cuttings the first summer, and they had some; but the May following they wanted plants, because their first lot got killed by the frost; to some I gave a plant or two, and to others cuttings as before. The third May brought me so many customers that had I been a nurseryman I could have soon emptied my shelves; and yet I did not like to break off our acquaintance, and I hit on the following plan, which answered remarkably well; so well, indeed, that for the last few years I had a strong competition to head against. In the spring Mrs. Strange, the head carpenter's wife, and Mrs. Keane, at the farm, sported

their *Alba multifloras*, their *Uniques*, and *Priory Queens*, and *Queen of Roses*, in better feather than any of us, in fact, there is a local competition in and all round the Park every May against me, and the plan which involved me in the contest was this:—I gave them to understand, distinctly, that any one who lost the third lot of plants next winter should go without any, from me at least, and those who took care of their geraniums were to have some new ones to add to their stock after the winter was over. Nothing more was needed, and every one of them can now manage to keep their plants as well as I can; two or three times I had dead plants brought to me in May, to see what killed them, and I prescribed on the spot, and supplied their places, and I believe there are very few plants now lost among all our competitors, let the winter be ever so hard.

I believe the safest way to keep geraniums is in boxes, their roots being planted first in *damp* sand up to the collar, and—to keep the sand from causing damp to rise among the stems, or lose its own dampness for a long time—an inch of the finest ashes, as dry as snuff, to be put over the sand; the stems of the geraniums not to touch each other; some of the smaller roots might be cut away, to allow more room, and an inch of sand should be pressed down in the bottom of the box, before the plants are put in; then begin at one end of the box, and put in a row of plants across, leaving their heads against the end of the box, pack the sand in well among the roots, and shake the box occasionally, to get every crevice among the roots filled up; then another row, and another, till the box is filled, and then is the time to regulate the stems so as not to touch each other; after that put on the dry ashes, and leave the box open for some days or a week; after that I am quite sure the lid, or some covering, should be put on to keep them quite dark, as they are to have no leaves, and hardly any green wood. Darkness, and a uniform temperature, will keep them as well as possible for a long time; but, still, I would have them looked over once in ten days, to see that no part got damp or mouldy, and if it did let it be cut off immediately, and leave the box open for a day or two. In the spring the box should be exposed to the light by the middle of March, and towards the end of the month it might be placed out-of-doors in the daytime, at least, and all night, too, if there are means of throwing some additional coverings over it in very cold weather; thus I would let the whole stand till the buds began to leaf, when the plants are ready to remove to some sheltered border, there to be planted in very light earth, and hoops stretched across, to sustain mats for protection as long as it is needed; or the plants might be put into pots when the leaves appeared, but on no account should they be disturbed in the box till some of the buds opened. The boxes should not be larger than two people could carry about. Of course the same arrangement would do without the boxes, only it would be very inconvenient and very dangerous to move the plants about so early in the spring. D. BEATON.

HARDY SPRING FLOWERING BULBS.

[This is from the same friend who favoured us with a note on the Silver Plant.]

It is time now to remind our friends about making arrangements for the furnishing their knots during the dreary months of early spring, when a few gay flowers on the otherwise bare ground will be so highly appreciated. We shall not this week say anything about spring-flowering herbaceous-plants, which, by-the-by, do not receive half so much attention as they deserve; but as this matter will be time enough some months hence, we shall confine our attention for the present to our beautiful hardy early bulbs. In a fine spring morning, I almost think a nice garden, tastefully planted with Crocuses, Hyacinths, Tulips, and Narcissi, more cheering than the most gorgeous display of summer

beauties, since the contrast between them and surrounding nature is then so much more striking.

The best arrangement for planting these bulbs will depend on the shape and size of the beds, and their connection one with another; but we will give a few hints as to the cheapest and most useful kinds, with their heights, colours, and times of flowering, so that every one may cut his own coat according to his cloth. We would, however, in particular, wage war against indiscriminate mixtures, unless in mixed herbaceous borders, when the various sorts may be planted in patches wherever there is room for them, observing always, however, to keep the dwarf kinds to the front of the beds, and the taller kinds nearer to the back. In a geometrical garden, where the beds are numerous and comparatively small, it will be better, in a general way, not to introduce more than two kinds into any one of them; that is to say, one dwarf kind round the edge of the bed, and a mass of some taller species in the middle; these two should contrast in colour, but should accord in season of flowering. When it is desired to prolong the beauty of the beds, two pairs, or sets, of flowers should be planted, one to succeed the other; in this case the two dwarfer things may be mixed together round the edge, and the taller ones mingled in like manner in the central mass.

When very large geometrical clumps are to be planted, we would adopt our favourite way of arranging them in zones, or belts, one within another, taking care, of course, to dispose them with good taste as regards colour, height, and season. But by far the most effective display we have ever seen made, has been on long borders by walk sides, the different kinds being planted in longitudinal stripes or bands. We will this week confine ourselves to a few hints as to the best sorts for growing in quantity, and give their heights, colours, and average season of flowering; so that those who intend to do anything in this way may make up their minds what will best please them: and we would particularly recommend them to procure the required quantity immediately; for they will thus secure better bulbs than by deferring it to a later period, as all respectable tradesmen practice the system of "first come, best served." Next week we will tell our readers all about preparing the soil, and planting.

We will suppose a border, by a walk-side, some eight or ten feet wide, as this would include a very complete series, which will be found in the following list of fifteen sorts. They may be planted in as many single or double lines, or those sorts which are connected with a bracket may be mixed together, thereby reducing the number of stripes to six. This list will enable every one to make a selection according to the size and arrangement of their beds or borders, and, at the same time, please themselves both in appearance and cost.

No. of Line	Name.	Colour.	Height.	Season.	Distance apart to be planted	Price per 100
			feet		inches	s. s.
1	Tall late Tulips— <i>Tournefort, Rex Rubrorum</i> , and <i>Mariage de ma Fille</i>	red, yellow	18	medium. Apr., May	8	20 to 25
	Tall mixtures	..	..	..	..	10
2	<i>Lilium candidum</i> (the common White Lily)	white	3	late. June, July	18	20 to 25
3	Hyacinth	red	1	medium. April	8	20 to 25
4	Crocus	white	3	early. Feb., March	3	1s 6d, 2s
5	Narcissus (tall mixtures)	cream. yel.	12	medium. Apr., May	6	15 to 25
6	<i>Iris Xiphoides</i> (mixed)	blue, white	12	late. April, May	12	15
7	Hyacinth	white	1	medium. April	8	20 to 25
8	Crocus	yellow	3	early. Feb., May	3	1s 6d, 2s
9	Tulips—Gold Standard, Royal Standard, & Yellow Göttebaker	red, yellow	1	medium. Apr., May	8	25
	Medium mixtures	..	..	..	..	10
10	Snowdrop	white	3	early. Jan., March	2	10
11	Narcissus (dwarf mixtures)	yel. white	1	medium. Mar., Apr	6	15 to 25
12	Hyacinth	blue	1	medium. April	8	20 to 25
13	Crocus	yellow	3	early. Feb., March	3	1s 6d, 2s
14	Tulip—Double Van Thol	red, yellow	3	medium. April	8	7s. 6d.
15	Winter Aconite	yellow	2	early. Jan., March	2	3s. 6d.

Mixed herbaceous borders may be rendered very gay in spring by introducing patches of the above; and for the same purpose we will add a list of other kinds, which are either not exactly suitable for lines and masses, or are too expensive to be used wholesale; for we are sure that it is useless to recommend things which nobody, or not one in a thousand, will afford to purchase.

Anemones, single and double, are beautiful things for patches, and by planting or sowing at different seasons they may be had in flower nearly all the year round.

Amaryllis bella-donna and *A. formosissima* stand in the open borders in the Channel Islands and the south of England, but in less favourable localities they require the protection of a south wall.

Anomatheca cruenta, *Crinum capense*, *C. album*, and *C. revolutum*, *Nerine Sarniensis* (Guernsey Lily), *Puncratium Illyricum*, and the Yellow *Amaryllis Sternbergia lutea*, are all very beautiful, and come under the same general rule as the *Amaryllis bella-donna*. They are all well deserving of a place where they can have a little protection. *Ixias*, *Sparaxis*, *Babianas*, *Ferrarias*, and many other very early-flowering Cape bulbs, require very similar conditions of cultivation and protection, for which their beauty is an ample recompense. But after thus glancing at them, we shall leave this interesting part of the subject till some future opportunity, when we may have leisure and space to treat it as it deserves. The rest of our remarks will be confined to bulbs which require no artificial protection.

Bulbocodium vernum.—A very pretty little, dark-purple, Crocus-like plant, flowering at the same season.

Colchicums (Autumn-flowering).—The well-known Meadow saffron, or Autumn Crocus. There are four varieties, the common, pencilled, and white single, and a double variety.

Dog's-tooth Violets are more beautiful in their foliage than in their flowers; the prettiest way in which we have seen them used, is as an edging along the inside of a stone-curbing, to which they give a very agreeable relief.

Hyacinths.—Feathered, Grape, and Musk, are pretty for patches; the Feathered, or Monstrous, requires support, as its great head holds the moisture in damp weather, and, like a drunken man, becomes top-heavy.

Fritillarias are curious dusky-looking plants, and look best when they are on a level with the eye, as amongst rock-work. There is also a white variety.

Iris.—These are all very useful plants. We have included the best bulbous-rooted species in our arrangement above, and of the kinds which grow from tuber-like under-ground stems. They are very useful for borders on rock-work, as their stiff, spear-like leaves contrast agreeably with plants of different habits. We remember seeing a line of them along the top of a dead wall at the outside of a garden, where the soil came level with the coping; the effect of the leaves alone was exceedingly good, as they formed a natural *chevaux-de-frise*. We may as well mention that this was in the excellently-managed gardens of the Duke of Sutherland, at Trentham. *I. tuberosa* is a very pretty dwarf species from the Levant, which, on account of its shyness of flowering, is not cultivated so much as it deserves to be; the fault, however, is not in the plant, but in being taken up too often. Its best place is at the foot of a wall, where it should remain till it flowers.

Jonquils are beautiful border flowers, of bright golden colour; the large double is the most showy variety, but the single one is the most fragrant.

Lilies.—We have recommended the Common White for a line, and it is truly beautiful as such; the Bulb-bearing (*L. bulbiferum*) would make an excellent line in front of the white, as it does not grow quite so tall, and retains its foliage better. All the species and varieties are good, and as most of them grow very tall, they are well adapted for planting in open spaces amongst shrubs and in the back of mixed borders.

Narcissus.—These are all excellent, and they are all suitable for lines. We have mentioned only a few of the best.

Ranunculus.—These are often, we may almost say always, grown in beds, but we think they would give greater satisfaction as lines or patches; they are amongst the most beautiful of bulbs, which are all beautiful. The Turban *Ranunculus* are the hardiest and easiest of management.

Scillas are lovely little bulbs, after the way of our common wild Hyacinths. *S. Siberica* and *Præcox* are the earliest of those generally cultivated.

Tulips are too well-known to need any comment, and we merely mention them that they may not be forgotten. The Sweet-scented Florentine is a variety we would draw attention to as deserving of more general cultivation.

Zephyranthes candida is as hardy as a Crocus, and not unlike a white one in flower, only that the leaves are more like those of a Jonquil: it flowers from May to October, preferring deep sandy soil. The Argentine Republic and the River La Plata are so called from the silvery hue of its flowers on the banks of the latter.

GREENHOUSE AND WINDOW GARDENING.

GASTROLOBIUM (from *gaster* a belly, and *lobos* a pod, owing to the inflated appearance of the seed-vessel) is a beautiful genus of plants, natives of New Holland and the Swan River, growing to the height of from two to four feet, and producing yellow and orange pea-blossomed flowers in great abundance. Previously to 1830 we had only two species, *bilobum* (two-lobed), with yellow flowers, and *retusum* (retuse leaves, rounded and depressed at the end), with orange and scarlet flowers, but since then many species have been introduced, the most striking of which are *acutum* (sharp-pointed leaves), with reddish-yellow flowers; and *villosum* (shaggy), with bright orange flowers. Others, such as *cordatum*, *oxilobum*, *spinosum*, *trilobum*, &c., mentioned in *The Cottage Gardeners' Dictionary*, have pretty yellow flowers. I should presume they all require similar treatment, though some of these last-introduced species I have not yet seen.

Propagation is easiest by seeds, steeping them in warm water, and sowing in a sweet, slight hotbed, in March or April, and after potting-off, hardening them by degrees, until fit to stand in the cold frame, or the frost shelf of a greenhouse. *By cuttings* of half-ripened shoots, or, better still, firmish side-shoots, from two to three inches in length, inserted in pure white sand, round the sides of a pot in May, covered with a bell-glass, and kept close in a cold frame or pit, and shaded only when there is danger from flagging. These, when potted-off, had better be placed three or four round the sides of a four-inch pot for the first winter, and then they may be singled out into separate pots the following April.

Soil.—Two parts fibry peat, one of fibry loam, with the smaller portions extracted, leaving chiefly the fibre, and one part of charcoal, broken bricks, and silver sand. Drainage must be particularly attended to.

Watering.—This must be carefully provided, especially in winter. Thoroughly dry in summer, and soaked in winter, so as to cause souring, will soon send the prettiest specimen to the rubbish-heap. Only let the stems of the plant come a number of times into contact with cold jerks from an unrosed watering pot, and disease and dissolution will soon approach. To keep the tenderer plants moist, and not sodden in winter, it is a good plan to place the pots inside of a larger one, the space between stuffed with moss, and that kept rather moist.

Temperature.—This should seldom sink below 40° in winter, unless the wood had been well hardened the previous season: 45° may be considered a fair average, with ten degrees or more allowed for sunshine.

Position.—The front of a greenhouse, or a conservatory, in winter and spring; a rather shady place in spring and summer, when in bloom, after blooming, and growth is advancing; an open airy situation afterwards, close to the glass in the greenhouse; or if in the open air, whether the top be shaded from

bright sunshine or not, the pots must be, either by the sides of a pit by being plunged, or by giving them double pots. If placed out-of-doors, replace them under protection by the first or second week in October, for although a little frost does not greatly hurt them in appearance, it is sure to show its effects in unhealthiness during the winter.

Insects.—The most troublesome are red spider and white scale, and these must be got rid of by means referred to the other week, viz., vapour from sulphur and washings.

GOMPHOLOBIUM (from *gomphos*, a club, and *lobos*, a pod), is another very interesting genus of podded, pea-flowered plants, producing, chiefly, yellow blossoms, and doing so when the plant is from nine inches to two feet-and-a-half in height. *Versicolor* has red and yellow flowers; and there are more than two dozen in THE COTTAGE GARDENERS' DICTIONARY, all of which, no doubt, are interesting where room can be given them; but in limited space, and where the genus must only have one commemorative species, I would be inclined, all things considered, to select the old *grandiflora* for free growth and free flowering. A good specimen may range from a foot-and-a-half to two feet-and-a-half in height.

Propagation, Soil, &c.—Exactly the same as for the *Gastrolobium*, only it would conduce more to success to have a little broken freestone mixed up with the compost, in addition to the other things specified; and even more care as to stagnant water must be exercised. True, two parts of peat and hardly one of loam will grow them well, but the other materials will render less care necessary, and will constitute a safety-valve if you cannot depend entirely on the wielder of the water-can.

OXYLOBIUM (*oxys*, sharp, owing to the points of the pods).—Another family of allied, podded, pea-blossomed plants with yellow flowers, blooming freely, and, like the others, early in spring and summer, when from a foot-and-a-half to two feet-and-a-half high. *Arborescens* may be considered an exception, as it may be grown from four to seven feet in height, and, between these extremes, is a beautiful object, with its long, narrow leaves, and clusters of yellow flowers around the base of the leaves, produced something near to whorl-fashion along the young shoots. In point of colour, *obtusifolium* has scarlet flowers; *retusum*, orange; and *pultenea*, dark-orange. The others, such as *cordifolium*, *lipticum*, &c., differ chiefly in the foliage. Were two selected from all we have seen, we would choose *arborescens* and *obtusifolium*.

Propagation and Treatment—same as for the above.

PLATYLOBIUM (*platys*, broad, and *lobos*, a pod), is another allied family with pea-flowers and broad pods, and distinguished chiefly by the flowers being a bright orange. The species bloom freely when from eighteen inches to four feet-and-a-half in height. After that size disease and decay may be looked for. *Murrayanum* and *obtusangulum* have a little red, and the orange is not so deep. As for the others—*formosum*, *ovatum*, *triangulare*, and *parvifolium*—the name almost furnishes the distinction. The flowers of *formosum* are also a little tinged with red; and where only one could be grown, that should furnish our type of the genus.

Propagation and Culture.—The same as the first genus, only cuttings are longer and more difficult in the striking; more fibry peat and pounded sandstone, or crocks, must be used, and still more care exercised in watering at all times, and keeping the pots in summer, if out-of-doors or in the house, from the direct action of a bright sun.

PLAGIOLOBIUM (*plagi*us, oblique, or twisted, from the appearance of the pods).—This is a beautiful genus, and a striking contrast to those we have already mentioned, owing to their beautiful bluish-purple flowers. In some catalogues the species will be found arranged under

Hovea, which beautiful genus it much resembles. There are only two species, *ilicifolium* (holly-leaved), and *Chorozemafolium* (Chorozema-leaved). Both are interesting, and, would we could say, most easily cultivated. When the *Hovea* and *Chorozema* are mastered, however, then these too will succeed. The main features of propagation are similar to the above, but the wood of the cuttings must *scarcely* be half ripe, and if taken off at the end of April or the beginning of May, after being kept in a close frame for ten days, they may receive a slight bottom-heat. The soil should be about the following:—Three parts fibry peat, one of fibry loam, and two parts combined of broken charcoal, freestone, crocks, and silver-sand, less or more of each as may be convenient; the great thing is *porousness* of soil, covered with finer on the surface, *care in watering*, and protection to the pot from sun in summer.

PODOLOBIUM (from *pous*, a foot, and *lobos*, because the longish footstalk enters within the calyx of the pod). This is the last genus I shall mention, which produces its yellow flowers freely when from one to three feet in height, and, like all the others I have alluded to, blooms from early spring to the end of summer. *Trilobatum*, from its fine, long-pointed, three-lobed, leathery leaves, and the abundance of bloom on its twiggy shoots, I would prefer to all the others, though all are interesting. *Trilobatum* has, also, frequently a little scarlet along with the yellow.

General Management.—With the exception of making the cuttings when a little younger, they require the same treatment, and the same cautions, as given above for *Gastrolobium*.

One feature more: before coming into bloom, and after blooming, when growing, frequent, but not heavy, syringings will be of much benefit, in the forenoon in spring, and towards evening in summer and early autumn. Taken altogether, the above would form a very interesting group where proper attention can be given them; without it, they will soon pine and die. I dwelt at some length on giving air not long ago, and that must be thought about in the treatment of these plants. So far as I have learned, the group selected are found only in the confines and neighbourhood of New Holland.

R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS THAT THRIVE WELL IN POTS—(Continued from page 400).

SOHRALIA DECORA (Neat S.); Rio Janiero. Flowers white, with a tinge of pink on the edges. As its name imports, this is a neat, pretty species, but very fugacious, the bloom lasting only one day; but several flowers appear in succession from the same spathe, especially if the old flowers are drawn gently away as soon as they fade. Desirable. 2ls.

S. LILLIASTRUM (Lily-like S.); Guatemala. Flowers very large, pure white, with a yellowish throat. The bloom of this fine species has not been seen yet in perfection in this country, indeed, the plants are very rare. Messrs. Rollisson exhibited a plant this summer, named at Chiswick, *S. lilliastrum alba*, it was handsome, and worth cultivation. The original species is finely figured in Mr. Batemen's splendid work on the "Orchidaceæ of South America." It is not on sale, that we are aware of.

S. MACRANTHA (Large-flowered S.); Guatemala. Flowers crimson purple, with a white throat; they are, probably, the largest flowers of the whole tribe of orchids. There are several varieties; but the variations are very slight, relating chiefly to the depth of colour, or the height they grow, all of which may be dependent, in a measure, upon cultivation, exposure to light, &c.

Easily grown, and a really fine plant, continuing to bloom for several weeks. 21s.

S. sessilis (Stemless S.); Peru. Flowers pinkish-rose, with the lip of a deeper colour. They are of a very short duration. 21s.

Culture.—We have already, under the head "Plants Requiring Peculiar Culture," treated upon the way to grow *Sobralias*, but as that is sometime since, we will briefly recapitulate.

Soil.—These plants are found growing upon little hillocks on marshy grounds, the soil strong, approaching to clay. During the rainy season they grow freely; but when the dry season sets in, they have a comparative rest. These circumstances point out the treatment we ought to give them in our stoves. The soil we grow them in at Pine-apple Place, is the kind so well known as the Norwood loam. The plants are put in rather large pots, and from April to September they are most liberally supplied with water. After the latter month, they are kept moderately dry; through the winter we never put them in the orchid-house. They are kept constantly in a common stove, the heat of which never exceeds 75° in summer, and often falls down to 45° in winter, yet the plants thrive well, and flower beautifully, proving that they require a very simple treatment, and will grow and flower well in a common stove, amongst other, comparatively speaking, hardy exotics.

STENIA PALLIDA (Pale S.); Demarara.—Sepals and petals pale yellow, the lip has a tinge of pink on it; flowers large for the size of the plant; pseudo-bulbs very small, and congregate together in a close mass; leaves about three inches long, and of a pale sea-green colour. A neat, pretty plant, growing in small compass, and very manageable. 21s.

Culture: Soil.—Rough peat, with the finer particles beaten and sifted out of it, and then mixed with small broken potsherds and charcoal, will suit it admirably. In potting, use plenty of drainage; in fact, half fill the pot with it, then lay upon the drainage a thin layer of moss, and upon that pack some of the compost pretty closely, then take the plant, shake off all the old soil, cleanse it from dirt, insects, dead leaves, and roots, by washing with a sponge and a small brush the leaves, and cutting off the dead leaves and pseudo-bulbs with a sharp knife, just at the point between the dead and the living parts. When this is perfectly well done, hold the plant over the pot, in the centre, and fill in round it the compost, packing it closely and firmly. It is a mistaken notion that orchids require the stuff about their roots to be loose and open. Whoever will take the trouble to examine the state of the compost in the pots of the fine specimens exhibited at Chiswick, and the Park, will find the compost is a compact close mass, porous it is true, but yet so firm, that if turned out of the pot, it would cling together in a mass. To return to the potting—as soon as the pot is filled level with the rim, and packed close, keep the plant still a little higher in the centre, and pack some nice pieces of the compost round it, leaving it standing upon a small elevated cone in the centre. Then give a watering with a syringe, rather forcibly, which will still more fix the soil firmly round the plant. Then place it in the warmest part of the orchid-house, and give a liberal treatment with both heat and water. If the rest has been properly managed, the potting season will be in the spring, the sun will then be advancing into power, and this *Stenia* will require, with the rest of the tribe, protection from his midday rays. The heat it requires is rather high to assimilate with that of its native country. Growing season, 80° to 85° by day, allowing it to fall in the night 10 or 15 degrees; resting season, 65° by day, down to 55° by night. **Water.**—As this is a plant almost without pseudo-bulbs, it will not bear to be kept quite dry at any season, but when growing,

should have a larger, much larger, supply than when in a comparative state of rest during the winter months. The air of the house should also be much drier in winter, or the leaves will damp off, especially the younger ones. In winter we place it much nearer the glass, on a high shelf. This situation suits it well, and it preserves its leaves in a perfect good state of health through that dreary season. T. APPLEBY.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS.

HOLLYHOCKS (in a flat box), too small and too loose, and, moreover, too thin to be useful.

KEYNE'S WHITE DAHLIA, very promising indeed; we must see it again. If it is the season of proving, perhaps it can be shown at the Slough meeting.

DAHLIAS (A. J.).—We cannot see any thing in either of the Dahlias to make them worth growing. There has been no meeting as last year; the largest was at Shacklewell; but there has been none, and will be none, like that at the Grecian Saloon last year. (*B. D.*)—The yellow is not so good as *Standard*; the scarlet not so good as *Gem*. The fancy one is no use whatever. Look to the back numbers of *THE COTTAGE GARDENER* for what we have said. Once is enough, except as a *résumé* of the season. (*B. B., Colchester*).—No use; not one good one. It is no use to say what points are deficient where there is not a good one. (*Whale, Kintbury*).—*Mrs. Wentworth*, one of those light flowers which have a coloured tip, or edge, shaded down into white; is a large flower, with a good circular outline, fine noble face, centre firm and symmetrical, though a little sunk; a decided acquisition. *Mr. Neville*, bronzy-purple, tolerably double, symmetrical, and compact; eye a little sunk; colour new, if not brilliant. *The yellow* one is a splendid colour, but, in its present state, too much sunk in the eye to be popular. We may see blooms more advanced, perhaps, when this fault is lessened. (*M. G., Higheross*).—*Scarlet King*, a round, symmetrical, full-sized scarlet flower, of excellent form among the cupped varieties, the eye so little sunk, that we anticipate seeing it occasionally quite up to the surface; it is the best form, and an acquisition, although we abound in reds. (*H.*)—No. 1, a yellow-white, of excellent form, well up on the face, somewhat ribbed, and quite new, because there is a brightness, instead of a dullness, in the yellow shade. *Saracen*, a dark, fancy variety, of good general form for its class, the tips are pinky-white, and the flower looks as if it would bear growing; the eye better than average. *Flower of the Day*, one of the fancy-shaped kinds; the ground is yellow and white, the stripes reddish; too flat on the face.

FLORISTS' FLOWERS CULTURE.

THE TULIP—(continued from page 10).

In our first essay on the culture of this noble flower we proposed dividing the subject into five parts, namely, Situation, Draining, Manure and Soil, Planting, and Shelter. In writing on these heads we found it necessary to alter the arrangement a little, because the permanent shelter we described in the last number ought to be erected previously to planting the roots; at least, it would be wise to do so, for carpenters are not in general careful where they tread, and might set a heavy foot upon a *Louis XVI.*, or a *Fanny Kemble*, or any other dear sort, and so injure it as to quash all hope of its producing a fine flower fit to win a premier prize the next year. And yet you could scarcely scold the man; he did it, or might do it, in perfect innocence of the mischief he was perpetrating. And here we are tempted to try the patience of that many-headed creature, "our readers," by relating an anecdote respecting

the fate of a tulip bulb of peerless price. In Holland, some 100, or it may be 150 years ago, there was a disease or epidemic broke out in the heads of some of our Dutch neighbours, and it rose to such a height that it became a species of madness, worse than the South Sea Scheme, or going to see the Great Exhibition in the Crystal Palace. This madness justly was named the *Tulipomania*, or tulip-madness, and to such a height did it attain, that as much as £1200, with a pair of splendid horses, their harness, and a handsome carriage, were given for a single tulip-root!! Our favourite plants, the Orchids, will fetch sometimes enormous prices in the estimation of some people, but nothing compared to this; *Orchid-madness* has not come yet to such a pitch, nor perhaps ever will. But this anecdote—we have not forgotten it. At the time when the fever was raging, a celebrated grower had two roots, and in the pride of his heart was showing them, in their brown skins, at the time they were at rest, to an intimate friend, also a great enthusiast. We may imagine how they turned them over, and examined them closely, and admired the rarities. It happened that some sudden emergency called the Dutch merchant out into his counting-house; such was the importance of the business that he forgot to lock up his precious roots. A countryman, having transacted business, was ordered into the house to take refreshment; bread and cheese and beer were set before him, which he partook of with that vigour and appetite a countryman always brings to town with him. Towards the end of his feast he espied the two tulip roots. "Ah," says he, "what two nice *onions*;" they would relish this last bit of cheese nicely. I will try one, however." Suiting the action to the word, he reached the almost priceless root, but was sadly disappointed as he chewed the dear morsel. "A bad sort," says he, "not a bit of flavour of an onion about it. I wonder whether that other brown chap is any better?" Just as he was reaching the other, the merchant, recollecting having left the roots, rushed into the house, and saw, alas! one of his invaluable roots in the hand of this countryman, and the brown skin on his plate showed what had come of the other. We leave the rest to be imagined; the rage and grief of the merchant, and the innocent consternation and wonder of the countryman. This story, which we read in an old work on gardening more than a quarter of a century ago, applies to the case we mentioned, that a common workman, carpenter or bricklayer, might innocently enough do a great mischief without knowing it, and, therefore, it is advisable always to get all their work finished, if possible, before putting anything into the ground. For that reason we wrote last upon the shelter necessary, both as a protection from severe weather, and shelter from the bleaching bright rays of the sun, and have now, in order to complete our essay, to describe the planting process.

The best season is about the beginning of the second week in November, as near the 10th of that month as the weather and the state of the ground will permit. This rule applies to all the country north of London; perhaps, in the milder climate of the southern counties a week later would be better. Too early planting is injurious, inasmuch as that the leaves will be pushing through before the severe weather has passed away, and would then be in danger, however well protected, of being frost-nipped, and, consequently, injured not only for that year, but also for years to come. The bulbs could not grow so large when the leaves are crippled as when they are continued in health till the natural decay takes place at the due season. For these reasons, and others that might be mentioned, the 10th of November is the right time to plant blooming bulbs of the tulip. Offsets are another affair; they may be planted a little sooner or later, as may be convenient.

The method of planting is governed by the height of

the flower-stems, for as some varieties grow taller than others, the tallest should be in the centre of the bed. This consideration renders it necessary to plant them in rows length-ways of the bed, and not across it. This being determined upon, let the soil of the bed be levelled and made tolerably smooth; then, with a triangular hoe, draw a drill the length of the bed, as near two inches deep as possible. To accomplish this quite straight, it will be necessary to have a line stretched very tight the whole length of the bed, at such a distance from the centre as will allow the point of the hoe, in drawing the drill, to be exactly in the centre. As soon as the drill is drawn, bring out all the tall growers, and plant them, five inches apart, at the bottom, giving each a gentle pressure. When the row is finished, thrust in at each end a strong stick, this is to mark where the row of bulbs is when covered up. Of very choice and expensive varieties, some florists recommend covering the bulbs with fine white sand, but if the soil is, as was mentioned on a former occasion, mixed with sand, we think the white sand may be dispensed with; however, we leave that point at the option of the grower. The next thing to do, is to cover them up—this is best done with a short-toothed rake. After that let the soil on each side of the planted row be stirred up with a three-pronged fork. Then set the line at the right distance from the centre (we mentioned that the beds should be four feet wide, which would allow nine inches between each of the five rows, and six inches next the edging), the line then must be set at such a distance from the centre, that the next row of bulbs will be exactly nine inches apart from the centre one. Draw the drill the same depth as the first, and plant the next tallest flowers in it. Then mark the row with a stick at each end, and so proceed till the whole is finished, the lowest growers will then be next the paths all round the bed. One important point we had nearly forgotten, though we do not think the planter would, and that is, each variety must be numbered, and the numbers put in so securely, that they cannot be easily displaced. All these points having been carefully attended to, the rest must be left to nature, excepting due attention to protection, which has been fully described previously. T. APPLEBY.

THE KITCHEN-GARDEN.

CAPSICUMS may be gathered as they ripen, and the green ones wanted for pickling might also be picked off now, as little more progress in the way of ripening can be expected after the middle of this month; even where they are under glass, the principal advance is in the growth of the plant, not the maturing of its fruit, and the frame, or pit, it is growing in may be wanted for other purposes. It is as well, after providing for the present and future wants of the family in the way of green ones for pickling, ripe ones for pepper, &c., to cut the plants off close to the ground, trim off some of the points where no fruit is on, and hang them up in some dry, light place, the fruit will partially ripen (yet not so much so as Tomatoes when placed under similar circumstances); those planted under south walls or close frames may remain in the ground some time yet, if they are protected at nights, and young, fresh Capsicums wanted; but if previous directions have been followed, the principal crop will have ripened and been secured some time ago.

TOMATOES.—This tender fruit will require protection now, in the shape of mats or other covering, at night, but if the weather sets in dull and moist, and with the appearance of remaining so, it would be as well to cut most of the fruit by the middle of the month; what is ripe may be at once used, and the full-sized green fruit hung up singly in some warm place; a kitchen is very

suitable, and we have seen them colour pretty well, and retain their plumpness almost as well as when on the plant. Small or half-grown ones cannot be expected to become useful fruit, but if previous directions of thinning the shoots, and divesting them of part of their leaves, have been duly attended to, a considerable quantity of ripe fruit will have been secured at various times during last month as well as the beginning of this; but when all are wanted, take off a part, as above, to hang up, and remove every leaf that in the least shades those remaining, and with a spade chop round the roots of the plant, at some little distance from it, to check all future growth; cover up at night, and you will probably swell out the small fruit remaining on, but which you will be obliged to cut eventually, and hang up to colour in some other place.

SPINACH sown the end of August will now want thinning, but the plants may stand closer than is usually allowed for summer crops; the many accidents it is liable to in winter, as well as its more slow growth, enable it to stand closer without taking harm; after thinning by hand, run the Dutch hoe through the ground between the rows, which may be repeated afterwards if the weather keeps dry. Take notice of the crop now in use, and nip out any points likely to run to seed, and it will continue to furnish a supply of fresh green leaves for some time yet, provided the situation it is in, and other circumstances, favour its growth.

CABBAGES for the principal spring crop may now be planted out in any open plot which has previously been

enriched by a good share of dung, and if it has been trenched two spits deep (keeping the top mostly to the top again, and the dung in the middle) so much the better; rows two feet apart, and the same between plant and plant, will not be too much for the larger varieties of early cabbage which we presume to be planted now, as the *London Market*, *Spotborough*, and many others. The smaller varieties, of which the old *Early York* may be regarded as the type, might be planted a little closer, but we presume a large portion of these to have been planted some time ago, partly as coleworts and some to arrive at full size; but, if none have been put in, lose not a day in preparing a good breadth on a south border, which plant with the kinds reported to be most early. The *Fulham* is said to be good, and so is the *East Ham*, though differing widely from each other, yet both are early, and when true, not liable to run to seed.

BROCOLI must be frequently looked over, and all heads in a forward state cut, with most of the leaves on, and hung up in some dry cool place; they will keep several days at this season without injury. The *Cape*, *Early White*, and *Walcheren* will be all coming into use now, as well as the late planted *Cauliflowers*, all of which may be treated alike.

FRENCH BEANS and SCARLET RUNNERS which are wanted to continue late in bearing must be protected by mats, or similar covering, on frosty nights, and remove all old fruit from the plants, to encourage their growth. J. R.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

I WISH some of the farmers of England could have seen the way in which Farmer Steady and his sons conducted their harvest this season. Indeed it would benefit more than some; for even the quietest and steadiest too often leave much to be done by their men, that would be far better done by their own hands; and the eye of the master is not always enough—his hand is wanted too.

Farmer Wilful was a quiet, steady man, and never allowed any noise or tumult about his premises; but his men did not do their work half so well as he would have done it himself. Now, the two younger Steady's were in the middle of everything, eye and hand. One was all day in the harvest-field "pitching," and the other was in the stack-yard, on the rick, or close at hand; and the good old father was toddling about, watching the boys as they drove the waggons, and doing all the light jobs about the farm, while the other hands were busy. Labourers will always knock horses about, if they possibly can; they think bawling at them, and hitting them, is the way to make them go; they have no notion of the gentle hand and encouraging voice of kindness. The horses on Steady's farm are like lambs; the whip is never heard; and instead of being worried, and fretted, and hot, they came in after harvest-work cool and comfortable, and were soon rolling about on the grass until dark. A man who was employed on the occasion, began by hitting the poor things about the head; but the old Farmer was behind the nearest tree, and it never happened again. I have seen, in former days, blows given with pitchfork-handles, but there is nothing of that kind done now. It was quite delightful to walk about throughout the busy scene, all was so quiet and orderly; and the peaceful manner in which all the farm-yard incidents took place, made them doubly beautiful and interesting. While the waggons were unloading at the rick, a flock of sheep came quietly by, passing among the men and horses on their way to the fold; and the cows, that had during the day been snug in the yard, now came forth to enjoy the freshness of their evening pasture. All were passing and re-passing at once, but nothing looked frightened or hurried; and not a sound was

heard but the dusty feet of the sheep, and the rustling of the sheaves as they flew upon the rick.

Now, there is a man in the same neighbourhood who has bought a few acres, and farms them well—in fact, he has done wonders with the land. He began by cutting down every tree he could find, great and small, throwing down banks, and trimming hedges, till the little property looks almost like Salisbury plain. Then he ploughed, and harrowed, and broke the land's heart, and almost his own too, with his determination to make it pay; and certainly it looks extremely well. This man, John Todd, was up early and late, like his neighbours the Steady's; he did everything that man could do himself, and by no means tried to make himself a gentleman. But even this activity and diligence may be used in a wrong spirit—for worldly ends, and for a worldly reward, the most wretched and broken reed upon which a man can lean.

John Todd never enters a church. There is something so particularly terrible in this idea, that I cannot write it without shuddering. He never enters a church—he lives in open defiance of God; therefore, his fruit must be like the apples on the Dead Sea shore. He is a violent, swearing man, a bad husband, and one whom no one likes to have much to do with. His language during the more anxious periods of farming, when all is bustle and interest, is fearful, even to the men. While he is heaping up the fruits of the earth, sent so plentifully and graciously by a Father's hand, he heeds not the giver, but vents his unthankful tempers upon the mowers and the reapers, upon the weather, the horses, and anything that goes wrong. His poor frightened wife sits meekly in-doors, glad to be quiet, instead of pleasantly cheering his labours, and gladly welcoming his return home.

We must not suppose, therefore, that when we are "not slothful in business" we have done our earthly work well. There are many other clauses contained in the same charge, all equally important, and equally binding. Two of these clauses, which closely accompany the one that John Todd seems to obey, are these:—Be "fervent in spirit; serving

the Lord." These three *must* walk together on earth, just as they stand together in God's Word. If man tries to separate them—to loosen the threefold cord—to take hold of one strand of the rope, and let go the others, he will hang on a little while, perhaps, but his fall at last will be sure. There will be a sudden and startling crash, or, what is perhaps still more terrible, a slow and imperceptible decay—a crumbling away of the ground under the feet, which is scarcely noticed until they slip from their footing, and all is over. Oh! what a terrible end comes upon him who lives without God in the world. "Despisers" may walk cheerily for a good while along the broad road; they may not always get into "trouble as other men," nor be "plagued like other men;" their eyes may "stand out with fatness;" they may "have more than heart and wish;" but the time will come when they shall "wonder and perish."

Let no man follow the bad example and pernicious ways of John Todd. If they could see him standing by the side of good old Farmer Steady, they would see at once the road that leads to grace. John Todd has a sharp, piercing, suspicious eye, an acute, worldly, watchful face, as if he was looking on every side for a foe, and ready to raise his hand to strike again. There is no peace in his countenance—nothing but pounds, shillings, and pence in it, except a scowl. Farmer Steady is the man to imitate, in his home, and his farm. A poor old man, who is about the premises constantly, said one day, "They all seem, as it were, to dwell together in love. What one thinks another thinks; and the women-folk are as quiet and busy-like as the men."

Such ways would make much more harmony in the world than there is at present. We need not be farmers to be steady and quiet, and dwelling in love. We may be cottage gardeners! we may be peers and princes: it matters not *what* we are, if we only hold "the Head," and keep the charge He has laid upon us. Let us all strive and pray to be "not slothful in business; fervent in spirit; serving the Lord."

TO CORRESPONDENTS.

BEETLES AND CRICKETS DESTROYING.—We have had the following answers to the query how these vermin can be overcome:—(No. 1).—"If your correspondent, 'G. J.,' will write to Charles Penny, 4, Roseberry Cottages, Dalton, near Kingsland-gate, he can have his beetles and crickets destroyed *effectually*. This I say from experience, having been swarmed with them, but now I never see one." (No. 2).—"If 'G. J.' will strew the rind-parings of cucumbers on the infested floors, the black beetles will, most probably, be diminished. If he will set small glazed vessels of water about the floors, &c., he will find that crickets have a great tendency to suicide by drowning." A friend tells us Cucumber parings are useless. (No. 3).—"Some time ago I got hold of a flask of 'Lyon's Magnetic Powder,' or 'Vermine Killer,' but I laid it aside; however, as the summer came round, our house became infested with cockroaches and fleas, notwithstanding all our cleanliness, the floors of the house being scrubbed every other week, and brushed down every morning; bed-clothes changed and washed every week. I determined, without much hope, upon trying the 'Magnetic Powder,' which I did, and, on entering the kitchen in the morning, I found the floor strewn with cockroaches, all on their backs, dead; I tried it again again, until I had destroyed all I could get up to the scratch. I now attacked the fleas, which the upper rooms were swarming with. I think they must have come from under the floors, the house being an old one. I was very much surprised, indeed, to find fleas in heaps wherever the powder had been sprinkled. In less than a week we had destroyed every flea that poked his nose out of his hole. I fancy this same powder would exterminate the green insects on plants just the same as if they were fleas. London is the only place that I know of where it can be bought; the prices are 2s. and 4s. per flask—very exorbitant for the size of them, certainly."

FLOWERS ON A GRAVE.—A Country Clergyman writes to us thus: "My feelings are entirely in sympathy with T.'s. I should say that the voice of nature, as well as religion, would teach us *exactly the contrary* of the conclusion, that 'they do not grieve sincerely who are sedulous to find out appropriate demonstrations of their grief.' Indeed the whole reasoning is as unphilosophical as it is unreal—all facts teach the contrary. The practice, moreover, of having flowers on the grave, and of cemetries being planted, is so very common in England, that I wonder at any one's calling the question of your correspondent a "strange one," when he only asks which are the most "appropriate" flowers. In this very parish several graves have shrubs and flowers round them from the wishes of relatives. If you like, I shall be happy to write a few lines on the subject for one of your future papers. In the meanwhile I think it is due to the feelings of your correspondent (T.), to know that at least one of your subscribers (a clergyman) dissents from the view taken in the correspondents' sheet of your two last numbers."—We hope that "A country clergyman" will favour us, as he offers, with his views on this subject. We admire cemetries, and we would not reprobate any one decking the grave with such plants as his own grief dictates.

AWARD OF PRIZES (S. J.).—If a prize is offered "for the best 12 cut flowers of distinct species," a stand containing *Duke of Cornwall* and *Tom Thumb* Pelargoniums ought not to have taken the prize; they are

mere varieties, and it would not at all matter though they may be varieties of different species. This same answer applies to a *Fuchsia* so shown; if a variety, and not a species, it ought to have disqualified the stand in which it was shown. *Scarlet Pelargoniums* will not hybridize with the light-coloured ones usually grown in our windows and greenhouses. *Cantua dependens* purchased now ought to bloom next autumn, if a middling-sized plant. A plant of *Dielytra spectabilis*, with its roots in damp moss, might travel by post.

BEDDING GERANIUMS.—E. F. H. begs to say that many years experience induces her to recommend *Mungo Park* and *Queen Adelaide*, as good Geraniums for bedding. They flower freely till the frost kills them, and the foliage of the first is free growing, and graceful in shape." Many thanks for bringing these two Geraniums under our notice. We recollect the names very well, but had forgotten their colours and habits. The redish purple (*Mungo Park*) is the best. Could you not get some one near you to take them up in the way of trade? The *Tom Thumbs* kept in sand in the cellar, ought to have been taken out by the end of March, instead in June, then they would have flowered like others. See what Mr. Beaton says to-day on this subject.

TOMATOES (R. D. Walsall).—If your Tomatoes were raised in a hot-bed, it is strange that they have not fruited. Perhaps they are diseased, for they are liable to the attacks of some parasitical fungus; possibly the *Botrytis infestans*, to which the potato is liable. The only plan now, will be to pinch off all their growing points, to keep the foliage thinner, and to place them in the lightest and hottest part of your greenhouse, keeping them rather short of water.

FRUIT-TREES (G. E. H.).—By all means remove the soil at the roots of your plum, or plant another. Your tree has been starved to death by inches. Your two *Apricots* may be *Moorpark* and *Shipley's*; the *Peach*, the *Royal George*; the *Nectarine*, the *Elruge*; and the *Cherries*, the *Royal Duke*, or *Morello*.

GUM IN THE CUCUMBER (A. L., Norfolk).—We are very glad that you have broached this question, having been as great sufferers as any body, for the last four or five years. It extends also to Melons, the Vegetable Marrow, &c. Our experience precisely coincides with yours; the out-door ones fail entirely, the frames suffer partially, and those in a fruiting pinery are seldom affected. This shows, at least, that whatever be the cause, heat and moisture of air are preventives. We have been told this week, that constant syringing with lime-water, is a preventive, and are just commencing a trial. Wait a week or so, and we will hunt the country for further accounts of it. Only try lime-water clarified.

FAULTY STONES IN PEACHES AND NECTARINES (A. L. Z.).—Your Peaches and Nectarines which have split stones, are badly set. Your wood has not been well ripened. We do not like your net covering at the ripening period; no shading for us. We should plant new Pear-trees on Quince stocks, under your circumstances.

CONCRETE WALKS (B. Y.).—A paved walk will be a very good foundation, if you put three inches of the concrete over it; but if the foundation is solid, we would prefer the walk to be all of concrete, and still only three inches deep. At present we have a heavy traffic of men and horses over a three-inch concrete walk, made last June, without any damage worth speaking of.

THRIFT EDGINGS (Ibid.).—Late in March, or early in April, is the best time either to trim or plant thrift edgings.

VERANDA (E. M. F.).—This veranda, which is in an angle, and on a south aspect, closed at both ends would be an excellent place for the Geraniums, and also for a few climbers, as a *Tacsonia mollissima*, and *Mandevilla suaveolens*. A border would be better than having them in boxes; but if you plant climbers with the Geraniums, you will have to divide spaces for them, to keep them from robbing the latter. Save seeds from your *Lobelia ramosa* now, to sow next March. It is a true annual, and cannot be kept over the winter, unless the plants are very young now. If they are young, and not yet in bloom, keep them, by all means, and you will see their beautiful flowers a month earlier. A dry shelf, in a cool greenhouse, is the best for them; a damp cold pit would hardly do for them, for they would become mouldy in damp or rainy weather.

BEES: PRESERVING COMBS.—T. Hill asks for "the best mode of keeping combs in a hive, through the winter, free from moth?" He has tried putting them in a glass, and tying paper over them, without success.—When the eggs of moths are deposited in combs, their hatching can only be prevented by destroying the combs; otherwise, tying paper over the hive, and then placing it in a dry place, will preserve them through the winter.

BEES IN NUTT'S HIVE (A. F.).—Should the centre department of your Nutt's hive contain twenty pounds of honey, it will be sufficient to carry the bees through the winter without feeding; but if less, make their store up to that weight by feeding. The bees in one of the collateral boxes are, in all probability, a second swarm, or cast, and of very little value, and removing them from your collateral box to your neighbour's centre one is not at all practical—their destruction would, in all probability, be the result. Your better plan would be to withdraw the divider, and give them the opportunity of joining those in your centre box.

HYACINTHS (R. S.).—If you do not object to give from eightpence to four shillings and sixpence per bulb for them, the following are the very best for pot-culture:—*Lord Wellington*, double, red; *Sans Souci*, double, red; *Blackburg*, double, mottled blue; *Laurens Koster*, double, violet; *Gloria Forum suprema*, double, white, carmine eye; *Dur de Berri d'or*, double, yellow, pink eye; *Lady Sale*, double, citron; *Amphion*, single, crimson; *Prosper Alpini*, single, deep scarlet; *Georgius primus*, single, black (intense blue); *La grande vedette*, single, pale blue; *Colossus*, single, white; *Grandeur a Merveille*, single, French white; *Golden Branch*, single, yellow; *Heroine*, single, primrose. To GROW IN WATER, the following are the best of the cheap:—*Comtesse de la Coste*, double, rose, purple eye; *Waterloo*, double, carmine; *Lord Wellington*, double, violet; *Mignon de Dillboust*, double, blue; *Anna*

Maria, double, white, purple eye; *Triomphe Blandinia*, double, waxy white, carmine eye; *Mars*, single, carmine; *Temple of Apollo*, single, flesh; *Orondates*, single, light blue; *William the First*, single, black; *Grand Vainqueur*, single, white; *Prince de Galitzin*, single, white. To grow in pots, the best of the cheap are:—*Acteur*, double, deep rose; *Grootwort*, double, rose; *A-la-mode*, double, blue; *Bleu fonce*, double, azure; *Don gratuit*, double, white, primrose eye; *La deesse*, double, white; *Diebits*, single, crimson; *Le franc de Berkey*, single, rosy pink; *Appius*, single, dark blue; *Emicans*, single, blue, white eye; *La can-deur*, single, white; and *Voltaire*, single, waxy white.

PANSEY (*Seedling Pansey*).—Form good, and contrast peculiar of primrose upper petals, with puce lower petals, but too stained by the green leaves between which they were packed, for us to judge whether the colours are pure.

IVY (*T. M. W.*).—Bees, &c., obtain honey from its flowers.

CONCRETE WALKS (*An Incumbent*).—You cannot have cheaper, and none either so permanent or free from weeds for your kitchen-garden and drive. You must not plant *Bees* either by ploughing them in or broadcast. Have them drilled or dibbled in—the latter is the best mode. About *Bees* next week.

WINTERING BEDDING-OUT PLANTS (*H. S. T.*).—Your greenhouse will do very well for the purpose. See what Mr. Beaton says to-day. A mat over the plants inside the house would be a great help in severe weather. Could you not have a small gas-stove?

SWISS CREAM.—In answer to *Sarah's* inquiry we have received the following recipes. *Recipe 1*. One pint of cream sweetened to taste, grate in the rind of a lemon, boil it a few minutes, then strain it, when cold stir in the juice of a lemon with a teaspoonful of flour, put a layer of macaroons in your dish, cover it with the cream, then another layer of cakes, putting cream between every layer, ornament to taste with preserve or dried fruit.—*L. R. L.* *Recipe 2*. Flavour with lemon rind and cinnamon a pint of rich cream, after having taken from it as much as will mix smoothly to a thin batter four teaspoonfuls of the finest flour, sweeten it with six ounces of well-refined sugar in lumps, place it over a clear fire in a saucepan, and when it boils stir in the flour, and simmer it for four or five minutes stirring it gently, then pour it out, and when it is quite cold mix with it by degrees the strained juice of two lemons. Take a quarter-of-a-pound of macaroons, cover the bottom of a glass-dish with a part of them, pour in a part of the cream, lay the remainder of the macaroons upon it, add the rest of the cream, and ornament it with sliced citron. It should be made the day before it is wanted for table.—*E. S.*

BULBS IN POTS (*L. R. L.*).—To be ready for removal in case you change your residence in the spring, you may plant your Jonquils, Crocuses, &c., in pots, and plunge these in your borders. Take care to have the pots deep enough, so that the roots may not be cramped.

WINTERING VERBENAS AND HELIOTROPES (*R. C. S.*).—As you have no greenhouse, the only plan we can recommend is one we published long since:—Dig a pit, two spades depth, about six inches larger every way than the hand-glass or pot, you mean to employ; fill this with large stones, potsherds, &c., and at the top, cinders till within an inch or two of the level of the soil; then put from four to six inches of very sandy soil on the top: in this plant the *Verbenas*, one in the centre, if for a hand-light, and one dozen at equal distances, if for an ordinary two-

light frame: they should be planted at the same time the stock is bedded out (*i.e.*, when the Mulberry leaf is the size of a shilling), and, by attention to layering through the summer, the surface of the prepared bed will be covered with young plants, which, with the help of a mat or two in severe weather, will stand all the winter, and be ready for bedding in the spring; the same pits will do for four years at least.

WINTERING GERANIUMS (*Sussex*).—The above pit would do for you; but see what Mr. Beaton says to-day.

OLD PLUM-TREE (*T. Hill*).—Cut the top off now, and paint over the wound to keep out the wet.

BEES—BARLEY-SUGAR FOR (*Ibid*).—Put a pound of the finest white sugar into a saucepan with a lip, together with half-a-pint of water; put it on a gentle fire and take off the scum as it rises; let it boil five minutes; strain it through a tammy (woollen cloth); return it into the saucepan and continue boiling it until the syrup has become thick, and that the handle of a spoon being dipped into it, and then plunged into cold water, the sugar upon the handle is found to be quite crisp; when this is the case the syrup is sufficiently boiled. On a marble slab, or a large china dish, well buttered, pour the syrup along in lines of the thickness the sticks are required; take hold of the sticks at each end whilst hot and twist them. The lemon flavour is given by dropping into the syrup ten drops of the oil of lemon just before pouring the syrup upon the slab. Neither the oil of lemons nor the straining through the tammy are required in making barley-sugar for bees.

NAMES OF PLANTS (*A. B. C. D.*).—Your plant is *Cineraria amelloides*, now called *Agatheca caelestis*, a native of the Cape of Good Hope. (*S. R., Belchamp Hall*).—Yours is *Nicandra physaloides*, formerly called *Atropa physaloides*; it is a native of Peru, and must have escaped from some garden.

TROPEOLUM TUBEROSUM (*Carig Coroll*).—Many thanks for your offer of the roots of this plant. Please to send them in a basket by railway, addressed to Mr. Beaton, Shrubland Park, Ipswich, Suffolk, to be left at the Claydon Station. Mr. Beaton wishes to have your address.

TURF-PIT FOR WINTERING BEDDING-OUT PLANTS (*Z. Z. Z.*).—A turf-pit in front of a south-east wall, with glass, is a good place to winter Geraniums in, also *Salvias*, *Calceolarias*, and *Ageratum*. It was a good plan to plant the cuttings without pots; what you will have to guard against, is damp, and if the leaves grow too close, thin them out from time to time, and pick off every yellow or mouldy leaf as soon as you see it; loosen the surface of the soil, now and then, and spread a little very dry ashes over it, which is a good preventive against damp; let no rain get at the plants before March, and keep the glass thickly covered in frosty weather. The *Heliotrope* and *Verbenas* will hardly do in such a pit, but you may try some of them; the rest you ought to pot, and try them in the windows. In future, keep a few plants of *Heliotrope*, and some *Verbena* plants, from the spring cuttings, in small pots, all the summer; cut them down in September, like Geraniums, and you will have no trouble in keeping them over the winter in your turf-pit.

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WEEKLY CALENDAR.

M W D D	OCTOBER 16—22, 1851.	WEATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
		Barometer.	Thermo.	Wind.	Rain is In.						
16 Tm	Martin last seen.	30.076—30.046	60—30	W.	—	27 a. 6	5 a. 5	9 0	21	14 17	290
17 F	Dogwood turns red.	30.057—30.043	60—34	S.W.	—	29	3	10 0	22	14 20	291
18 S	St. Luke. Lime leafless.	30.105—30.058	63—44	W.	—	30	0	11 7	23	14 41	291
19 Sun	18 SUNDAY AFTER TRINITY.	29.957—29.901	59—37	W.	—	32	1v	morn.	24	14 52	292
20 M	Hen Chaffinches flock.	29.892—29.850	45—35	N.W.	—	34	56	0 24	25	15 3	293
21 Tu	Stars declination, 16° 36' s.	30.028—29.917	52—33	N.E.	—	35	54	1 46	26	15 13	294
22 W	Caddy-maddy Gull inland.	30.110—29.777	52—34	N.	0.11	37	52	3 9	27	15 22	295

ANTHONY WOOD, the learned and the illiberal, when writing a memoir of Richard Carew, says—"Our author hath written The true and ready way to learn the Latin Tongue. This is involved in a book published by a Dutchman, SAMUEL HARTLIB, Esq." Now, any one unacquainted with the literature and history of the seventeenth century would never conclude from this notice that Mr. Hartlib was one of the most admirable of Anthony Wood's contemporaries. Yet such was the case; and no man has existed who expended the resources of both purse and mind more liberally, not only for the benefit of his adopted country, but for mankind at large. He was, however, a supporter of Cromwell, and this was enough to incur Wood's hatred, though every act of his life had been worthy of record with a pencil of light. Evelyn, though a Royalist, was more just; for in his "Diary," under the date of Nov. 27th, 1655, he says, "I went to see York House and gardens, belonging to the former great Buckingham, but now much injured through neglect." Thence to visit honest and learned Mr. Hartlib, a public-spirited and ingenious person, who had propagated many useful things and arts. He told me of the castles which they set for ornament on their stores in Germany (he himself being a Lithuanian, as I remember), which are furnished with small ordnance of silver on the battlements, out of which they discharge excellent perfumes about the rooms, charging them with a little powder to set them on fire, and disperse the smoke; and, in truth, no more than needed, for their stores are sufficiently nasty. He told me of an ink that would give a dozen copies—moist sheets of paper being passed on it—and yet remain perfect; and a receipt how to take off any print without the least injury to the original. This gentleman was master of innumerable curiosities, and very communicative." Hartlib lived then close to the Duke of Buckingham's gardens; for in one of Walter Blith's works, published in 1653, the latter says, "Whoever desires to be cordially informed of Mr. Speed, may from Mr. Samuel Hartlib, dwelling against Charing-cross, who can give fuller and larger description, both of the man and his abilities, having expressed himself so far a gentleman of such charity towards him, as he hath maintained him divers months together while he was inventing some of his discoveries." This partaker of his hospitality we believe to have been Adam Speed, who in 1651 published *The Reformed Husbandman*, and, in 1659, *Adam out of Eden*. It was by thus fostering the ingenious and distressed, of which we gave another example, a few weeks since, in the case of *Gabriel Plattes*, that Mr. Hartlib expended and diminished his fortune. His generosity was unrestrained by such considerations as political partisanship, and Cavalier or Roundhead shared alike his purse, provided they were virtuous, clever, and distressed. The day came, however, when he needed pity and assistance, and, to the shame of the second Charles and of his ministers, it remains on record that that assistance was withheld; and there is too much reason to believe that Hartlib died neglected and in penury. Fortunately we have a few fragments of his autobiography; and from these, and some other sources, we can form a connected sketch of the progress of this great promoter of the culture of our soil.

Samuel Hartlib was the son of the King of Poland's merchant, who, when the Jesuits prevailed in that country, was obliged to remove himself into Prussia, where he settled and built the first house of credit at Elbing, which cost him many thousand of rix-dollars, in those cheap days. Hence his grandfather, the deputy of the English company at Dantzick, brought the English company to Elbing; and that town came by trade to the splendour and result which it afterwards attained.

"My family," says Hartlib, writing in 1650, "was of a very ancient extraction in the German empire, there having been ten brothers of the name of Hartlib. Some of them have been privy counsellors to the Emperor, some to other inferior princes; some Syndics of Ausperg and Norimberg. But they passed afterwards not so strictly for Udallants in the Empire, when some turned merchants, which is derogatory to the German nobility. I may speak it with a safe conscience, that I never, all the days of my life, reflected seriously upon my pedigree, preferring my heavenly birth above all such vanities; and afterwards studying more, to this very day, to be useful to God's creatures and serviceable to his Church, than to be rich or honourable."

He was the issue of a third wife, his father having married two "Polonian ladies, of noble extraction." This third wife seems to have been an English woman, for she had two sisters very honourably married here; one, first to Mr. Clark, son of a lord mayor, and afterwards to a "very rich knight, Sir Richard Smith, one of the king's privy council, she bringing him a portion of £10,000; after his death, she married a third time Sir Edward Savage, and was made one of the ladies of honour to the king's mother. Her daughter married Sir Anthony Irby at Boston, "a knight of 4 or 5,000l. sterling a-year." The other sister married Mr. Peal, a younger brother.

Warton says that Hartlib came into England in 1640, but we think that his arrival must have been ten years earlier, for before 1630, he is known to have been intimate with Archbishop Usher and Dr. Mede, in consequence of the strenuous efforts he made to procure a union between the Lutherans and Calvinists. An account of these efforts he published during 1641, in a work entitled *A relation of that which hath been lately attempted to procure ecclesiastical peace among Protestants*.

* This house and gardens covered the ground on which now stand George-street, Villiers-street, Duke-street, and Buckingham-street.

In 1645, he published *A Discourse of Flanders Husbandry*; not then knowing who was the author of that, and the "Legacy" to his sons, which relates also to the cultivation of their estates, written on the author's death-bed, 1645. The author was Sir Richard Weston, whom Harte apprehends to be the Sir Richard Weston, "who was ambassador from England to Frederick V. elector Palatine, and king of Bohemia, in 1619, and present at the famous battle of Prague, concerning which a curious relation of his, by way of letter, is still preserved in MS." It is remarked in the *Philosophical Transactions*, that England had profited in agriculture to the amount of many millions, by following the directions laid down in this little treatise, which has always been looked upon as a capital performance in husbandry.

Hartlib afterwards, in order to enlarge and better explain this famous discourse, published another edition, and annexed Dr. Beati's annotations to it; so convinced was he that "agriculture is one of the noblest and most necessary parts of industry belonging to a commonwealth, the first ground of mutual trading between men, and the well-spring of wealth in all well-ordered societies."

In 1659, Hartlib published his *Legacy, or an enlargement of the discourse of Husbandry used in Brabant and Flanders*. This famous work was only drawn up at Hartlib's request, and passing under his correction and revision was published by him. It consists of one general answer to the following query, namely—"What are the actual defects and omissions, as also the possible improvements in English husbandry?"

The real author of this work was Robert Child. To it are annexed various correspondences from persons eminent for skill in agriculture at this time; as C.D. B.W. R.H. T. Underhill, Henry Crutenden, W. Potter, &c., as also the "Mercurius Lætificans;" and twenty large experiments by Gabriel Plattes; together with annotations on the *Legacy*, by Dr. Arnold Beati, and replies to the animadversions by the author of the *Legacy*.

In the preface to the "Legacy," Hartlib laments greatly that no public director of husbandry was established in England by authority; and that we had not adopted the Flemish custom of letting farms upon improvement. Cromwell, as Harte says, in consequence of this admirable performance, allowed Hartlib a pension of £100 a-year; and it was the better to fulfil the intentions of his benefactor, that he procured Dr. Beati's excellent annotations before-mentioned, with the other valuable pieces from his numerous correspondents.

Hartlib says himself, "As long as I have lived in England, by wonderful providences, I have spent yearly out of my own between 3 and 400l. a-year, sterling; and when I was brought to public allowances, I have had from the parliaments and councils of state, a pension of £200 sterling a-year, which as freely I have spent for their service, and the good of many." He says he "erected a little academy for the education of the gentry of this nation, to advance piety, learning, morality, and other exercises of industry, not usual then in common schools." This probably occasioned Milton's "Tractate on Education," about 1646, to be addressed to him; and "Two letters to him on the same subject, by Sir William Petty."

We have seen, from Evelyn's Diary, that Hartlib's attention was directed to other arts besides that of cultivating the soil; and it is certain that he was one of the early promoters of those meetings of experimenters which formed the embryo of the Royal Society. In its archives is a curious letter from Hartlib to Boyle, dated Amsterdam, May 18, 1649, in which is the following memorandum: "Fauxhall is to be set apart for public uses, by which is meant making it a place of resort for artists, mechanics, &c., and a dépôt for models and philosophical apparatus." It is further proposed, that "experiments and trials of profitable inventions should be carried on," which, says the writer, "will be of great use to the Commonwealth." Hartlib adds, that the late king (Charles I.) "designed Fauxhall for such an use."

In another letter to Boyle, dated May, 1654, Hartlib says, "The Earl of Worcester is buying Fauxhall from Mr. Trenchard, to bestow the use of that house upon Gaspar Calehof and his son, as long as they shall live, for he intends to make it a College of Artisans. Yesterday," he adds, "I was invited by the famous Thomas Bushel to Lambeth Marsh, to see part of that foundation."

At length the Restoration brought with it evil days to Hartlib, and all his public services were forgotten. In December, 1662, his pension was £700 in arrears; and, in a letter to Lord Herbert, he complains "he had nothing to keep him alive, with two relations more, a daughter and a nephew, who were attending his sickly condition." About the same time he presented a petition to the House of Commons, by the name of Samuel Hartlib, sen., setting forth his services, and praying relief; in which, among other things, he says, that for thirty years and upwards he had exerted himself in procuring "rare collections of MSS. in all the parts of learning, which he had freely imported, transcribed, and printed, and sent to such as were most capable of making use of them; also the best experiments in husbandry and manufactures, which by printing he hath published for the benefit of this age and posterity." The events of these applications, and the time of the death of this ingenious man, are unknown.

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 58.6° and 41.6° respectively. The greatest heat, 73°, occurred on the 21st in 1820, and the lowest cold, 20°, on the 21st, in 1842. During the period, 89 days were fine, and on 79, rain fell.

A LETTER before us asks if we think that "the editor of the *Gardeners' Chronicle* is right in advising the cultivation of the potato to be abandoned, now that it is evident that the parasitical fungus causing the disease is so decidedly established in this country?" We did not know that our contemporary had so advised, but if he has, then we think he is as wrong as any one would have been to advise that the cultivation of wheat should be abandoned because liable to destruction by other parasitical fungi—the mildew and smut. Let us admit the assertion that the potato disease is caused by a fungus, yet there are means of as effectually escaping it, as there are to escape from those which affect our corn crops. This is no mere assertion, but proved over and over again, and to this we would have every one of our readers take heed. *If you plant in November, without manuring the ground, such early varieties as ripen by the end of July, or very early in August, you will have no diseased potatoes worth mentioning.* We do so ourselves, and we have no potatoes affected with the disease. When, therefore, we hear, in September, people lamenting over the fifty per cent. loss of crop they are enduring, and thence arguing that the potato culture should be abandoned, we do not know which most to deprecate, their obstinacy, or their ignorant conclusion.

The time is now close arriving for autumn planting, and we again warn our readers to adopt the system we recommend, have a hundred times recommended, and which we will again repeat. 1. Plant whole middle-sized potatoes. 2. Plant only early-ripening kinds, such as Ash-leaved Kidneys, Rylott's Flour Balls, and Luker's Oxonians. 3. Plant early in November. 4. Plant by the dibble six inches deep, and do not tread on the ground after it is dug. 5. Plant on soil without manuring it; or, if it be very poor, give it a dressing on the surface, before digging, either of charred refuse, or of soot and salt.

We do earnestly beg of our readers to try this plan—to follow our directions in every respect—and then, when they take up their crop at the end of July, to favour us with a report of the results.

GARDENING GOSSIP.

OUR readers have not yet forgotten the observations we made upon *The Great Northern Tulip Show*, nor the angry and personal remarks they called forth on the part of one of the judges. From these may be learned a great moral lesson; keep truth for your foundation and your building is safe; give but a false colouring to anything, and your structure must sooner or later be shaken to pieces by facts.

The history of this little squabble may be told in a few words. For many years the southern florists have considered a pure ground colour the first essential, in fact, a *sine qua non* to a good Tulip; for many years the northern florists considered the colour and marking of Tulips far more important than a pure base or ground colour. A "Great Northern Tulip Show" was held in Derby, at which Mr. Henry Goldham, of London, was a judge, and he acted with three more, but they were northerners. As prizes were awarded to stained flowers, such as would be considered a

disgrace to even a poor man's bed among the true lovers of the flower, we censured Mr. Goldham, not for helping to award prizes to impure flowers, for we never suspected him of doing so, knowing, as we said, the pure taste of his father, who has an unrivalled collection, but we censured him for not walking out of the place when he found three northern judges against him, because he then would not have countenanced the proceedings by his presence. This brought down upon us an accusation of falsehood, and we were told the judges were unanimous, Mr. Goldham quite agreeing with everything that was done. This was making bad worse; the attempt to deny that foul flowers had prizes, and that clean ones were placed below them, was a sad mistake, because we had proofs of the fact—proofs which made one of the northern judges confess that foul flowers *ought not to win*—that the northerners *no longer willingly pass them*—but that they cannot, as yet, carry out their condemnation entirely, because there are many poor growers, and so forth. If we had done nothing else but force this admission from the northerners, who for so many years struggled for the marking in preference to pure grounds, we had done enough. Mr. Wood, however, invited Mr. Henry Goldham to contradict us, and asks him, first, if there were any foul flowers? and, secondly, whether particular flowers mentioned by him were a disgrace to a southern bed—mentioning, however, *good flowers* instead of *foul ones*. Mr. Goldham answers as if he knew that the flowers we condemned were *not the flowers Mr. Wood asks about*; but, let us give Mr. Goldham's own words:—"To your first query, whether any stained-cupped flowers were allowed to win? I answer, I saw none!" Why Mr. Wood had acknowledged in his work, by the admission of a criticism on the show, that *there were some*! We cannot say Mr. Goldham makes an unfounded assertion when he says he *saw none*, but the floral world will tell him that, as judge, he ought to have seen them; but he goes on: "To the second, whether the flowers *you have mentioned* would have disgraced the stand of the poorest southern grower? I reply, that several of them are grown in the bed, and all of them in the collection of the (I believe pretty generally acknowledged) first amateur Tulip growers in England." This is very discreditable fencing; it is begging the question. Did Mr. Wood mention the foul flowers which won, and which we alluded to? No! he mentioned some of our best flowers. But let the answer to this question decide the dispute: Would Mr. Turner, Mr. Goldham, senior, Mr. Lawrence, Mr. Edwards, Mr. Hunt, Mr. Dickson, Mr. Saunders, or any other first-rate grower, put *Vesta* in a stand to pass metropolitan judges? Dare they put *Lady Crew*, with her—at the very best—three little spots, into a stand? Dare they put *Louis XVI.*, no matter by what name it is called, in a stand? Either of these three flowers, even in their best clothes, would disgrace the stand of a southern grower.*

We have already noticed the disposition on the part of some dealers to run down the *King of the Dahlias*.

We now merely wish to say that in Lancashire, where there is class showing, it has received justice, and been placed repeatedly at the head of the crimson class, and we further say, that in spite of all the endeavours to lower the value of the flower in the estimation of those who have not seen it, there will be more demand for that variety next season than for any other; and if it should happen to be a bad keeper, which is not unlikely, it will bear a price above some new flowers. Mr. Slater, a Lancashire florist, considers *The King* the best of its class.

At Oxford a *Fuchsia*, which may be pronounced the largest in cultivation, was shown, said to be a cross between *Fulgens* and the *Beauty of Leeds*.

It is a pale variety, perfectly monstrous, quite a curiosity in its way. It was called *The Great Western*, and attracted a good deal of attention. It may not be a first-rate show flower, or even a show flower at all, but as a flowering plant

* We have received a letter from Mr. Slater, of Cheetham Hill, Manchester, fully confirming all that is stated above, but to say the plain is needless. It is now admitted that foul flowers were allowed at Derby to defeat pure flowers, and it is said that it shall not be so in future, so what more need be said. It is really too much to expect that those who are obliged to retreat should not kick up a little dust to conceal their mistake.—ED. O. G.

may be made a very striking feature in a collection, and we have a hundred worse that have been put out as first-class varieties. The *Great Western* was said to have been raised by Mr. Patterson, gardener to the Baroness Wenman, at Thame Park.

The winding-up *Dahlia Show* at Mr. Bragg's, of *Slough*, gave us nothing in the shape of novelties, nor did the appearance of the new flowers alter the general aspect of the hundred-and-thirty varieties which made their appearance in the lists to come out in spring.

The meeting at the dinner table was, as usual, rather full, and a box of blooms arrived, long after the cloth was cleared, from Mr. Drummond of Bath; among these there was one called *Bob*, sufficiently good to attract attention, and we should like to see it again.

E. Y.

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.



LARGE-FLOWERED ESCALLONIA (*Escallonia macrantha*).—*Gardener's Magazine of Botany*, iii. 209.—Escalloniads (of which more than two dozen species have been described in this genus) form, with Oaks and Drymids, a zone of vegetation from the Equator southwards through the Andes of Peru and Chili, at an elevation of from 6,600 to 14,760 feet, consequently they are more hardy with us than Cape or Australian plants in general. Besides, some stragglers from the main body are met with through Patagonia, onwards to its land's end, Terra del Fuego, and the adjacent island of Chiloe, where this, perhaps the most beautiful plant of the genus, was found by the recent explorer of many regions, Mr. William Lobb, by whom it was transmitted to the Messrs. Veitch, of Exeter. These enterprising collectors brought it forward two years ago at the London exhibitions, where its great merits as a half-hardy plant were soon recognised; add to this the great facility of in-

creasing it by cuttings, and it is not to be wondered at that so fine a plant has already found its way into every garden of note in the three kingdoms and on the continent. Next spring small plants of it will very likely be offered for sale at a shilling a-piece, so that every cottage gardener may have one to plant on the front side of his house, to be trained up against the wall like a currant-tree.

The whole genus are plants closely allied to the *Currantworts*, their dry fruit being the principal character by which some of them can be distinguished from allied species of the Currant, although some authors, and Decandolle among them, have supposed them to have relationship with *Heathworts* and *Saxifrages*, owing to their many-seeded fruit. As early as 1824, Brown demonstrated the necessity of placing the Escalloniads next to the *Currantworts*, in *Franklin's Voyage*, page 766, when he first instituted the Natural Order *Escalloniaceæ*, or *Escalloniads*, as they are now more euphoniouly called. Six years later, Decandolle, in his great *Prodromus*, still adheres to the opinion of their being a distant section of the *Saxifrages*; but this view of their affinity has not been much countenanced in this country. Ruiz and Pavon, the authors of the *Flora Peruviana*, could not well escape a whole region of vegetation which lay across their tract, as did that of the *Escalloniads*; and we find them describing most of the species. They called the genus *Stereoxylon*, but one of their compatriots named Mutis, who took up his residence in New Grenada, was on the mountains before them, with one of his pupils, whose name was Escallon, and after him Mutis named this genus *Escallonia*, so that the name published in the *Flora Peruviana* falls in as a synonyme to it. Mutis sent specimens and his generic descriptions of *Escallonia*, to the younger Linnæus, who published the name ere the manuscripts of the *Flora Peruviana* were ready for the press. *Escallonia macrantha* is from a lower latitude than that of the region which the great body of the family inhabit, being a native of the Island of Chiloe; we may, therefore, expect it to prove more hardy than those we possess from either side of the Andes chain, which renders it still more valuable for general cultivation. We have seen the large specimen of it which was exhibited this season by Mr. Veitch, and also a fine and faithfully-coloured figure of it which appeared lately in the *Gardener's Magazine of Botany*. A friend of ours has made a fine specimen, a yard high, from a little plant this season, which was not more than four inches high at the beginning of last February. His method was to allow it a space at the end of a hot, damp stove, where it grew so fast as to require a fresh pot every six weeks. The compost he used, we believe, was little else than the old proportions of loam, peat, and sand. About the middle of August this plant was taken from the stove, and placed in a cold pit with the glass on, where, he informs us, he intends to rest it until the natural heat of the season will stimulate the plant into fresh growth in the spring, when it is to be planted against a low wall, such as that recommended by Mr. Beaton. We may also state, in passing, that the green ends of all the shoots on this plant were cut off and made into cuttings, when the plant was removed from the hot-house, the cuttings were put under a bell-glass in a hotbed, and before the end of September, when we saw them, the pot was getting filled with roots. We did not ask the compost used for these cuttings, but we saw the top was all of white sand.

The genus *Escallonia* belongs to the first order of the fifth class in the Linnæan system, *Pentandria Monogynia*, and *E. macrantha* is an evergreen shrub, about five feet high; branches, round and hairy; leaves, pointed oval, tooth-edged, and with depressed net-work markings on the upper surface, which is dark green and smooth, but beneath, pale, and dotted with resinous points; flowers, crimson, in clusters at the ends of the young branches, each pip having a deciduous small bract; corolla five petaled and tubular; stamens, the length of the tube.

B. J.

Escallonia macrantha flowers on the current year's growth, like the *Fuchsia*; and the same treatment in every respect

is suitable for both from the cutting pot, through the different stages of potting, soils, watering, heat, and all, and also the pruning in various ways, to obtain different-shaped specimens.

D. BEATON.

THE FRUIT-GARDEN.

RAISING SEEDLING FRUITS.—When we look at the amazing capabilities which most of our fruits possess, indeed, endless, it would seem, of being made the subjects of hybridizing, one cannot but wonder that in these advancing and adventurous days such a field should remain, comparatively, unexplored; offering, as it does, to reveal sources of interest to those who delight more in mental than mere animal gratifications.

To talk of hybridizing in October, may certainly seem to talk out of season; but we may, at least, sound the note of preparation for the ensuing spring, in order that those who are inclined to enter the lists may gird their armour on in good time. Nevertheless, the raising seedlings from fruits of high qualifications, or those presenting unusual appearances, without previous hybridizing, is in itself a most interesting and useful procedure, and fraught with double chances; that is to say, the possibility of raising superior kinds, or, at least, of producing a very superior lot of stocks for budding and grafting purposes. Now, since the latter *must be had*, and since many amateurs like to raise their own, why not begin a system, and make a point of raising a few of each kind annually?

To begin, we will allude to the main essentials requisite in the *Apple*, to found a claim to consideration in this respect. In the dessert kinds, the first point, we should say, is depth of flavour; the second, juiciness; the third, tenderness of flesh; the fourth, superior appearance; and the fifth, keeping properties. Beyond this there is little to desire, and they are, perhaps, placed in the order of their importance.

Depth of flavour.—Of what use are the finest-looking apples imaginable, if their flavour be weak or inferior? Compare the flavour of the *Old Nonpareil*, with such as the *Emperor Alexander*; and, again, compare their appearances. A dish of the former would add little to the general appearance of the dessert table, whilst the latter, in high perfection, would look almost as gorgeous as a dish of peaches—but mark the difference to the palate! A great amount of pleasant juice is a redeeming property, certainly, and, to a few palates, even precedes flavour, but we should wish to show how the two may be combined. As to juiciness, let no one attempt to breed seedlings from a dry fruit: such are utterly worthless, and cannot by any means be taken as the precursors of advance.

Tenderness of flesh.—Of the utmost importance; neither a tough apple, nor a hard one, can ever be first-rate. The *Kerry Pippin* is perhaps the richest-flavoured September apple we possess, but we have known many lament its hard texture. Young gentlemen possessing, as the horse-dealers say, “a capital mouth,” may like such hard fruits better than more tender ones, but the majority will be found on the other side.

Superior appearance.—After securing the before-named properties, by all means let a handsome exterior carry some weight. No great dumpling-looking apple, full of corners, and uneven, can be tolerated on first-rate tables, albeit of superior flavour. The round, or pippin-shaped apple is most generally esteemed, and looks best when the eye is neat, and not too much sunken. Those of the *Pearmain* character are frequently nice-looking fruit; for instance, *Adam's Pearmain*, which is both handsome, and of very nice texture and flavour: such make a decided change as to form, and when two dishes of apples are admitted to table, produce a striking contrast.

Keeping properties.—Although our fruit-lists in these

days are sufficiently comprehensive to provide the dessert table in a consecutive way from July to June, yet keeping properties are of considerable import; and there can scarcely be two opinions as to the choice between two apples, equal in flavour and general character, yet the one continuing for weeks, the other merely the apple of to-day. The raiser of seedlings, therefore, may as well keep an eye on such matters, while attempting to raise superior kinds. Some apples, however, become tough and elastic in character, notwithstanding they keep a long time fresh in appearance—of this character is the *Ross' Nonpareil*—such we would by no means breed from, but only those which preserve their texture and juiciness to the end.

Colour.—Little can be said on this head to guide: colour, we suppose, must be held in a subordinate position; at least, flavour, juice, and texture may not be permitted to give way to it. Certainly, if colour can be obtained with the above qualities, it is a most desirable affair; and in dessert matters even keeping and bearing properties might concede a point for the sake of display; for, after all, handsome fruit, especially those possessing colour, are much esteemed by our table-deckers.

Bearing properties.—Although we did not place this amongst the principal qualifications, not desiring to hamper or limit the importance of the prime qualities, yet the useful, as well as the pleasant, must be thought of; still, as the most refractory kinds may be brought into bearing by improved practice, or by the use of the *Paradise stock*, little may be said, it will suffice to point to it.

BAKING OR BOILING APPLES.—These, commonly termed kitchen apples, are also a most important class, and deserve a few remarks. As points here we would place good stewing properties first; bearing, second; and keeping, third. We have given keeping properties a last place here, because we are assured that abundance of choice exists, both in named and unnamed kinds; and, also, because our kitchen apples meet with so great a consumption, as compared with those of the dessert, that good bearing properties are more essential still. Almost all little gardens can afford the proprietor a regular supply of table apples; not so, however, of kitchen kinds. If size can be obtained, so much the better; indeed it is scarcely necessary to name this, as most of our best kitchen apples are above the middle size; and when we come to consider the loss by paring, it is obvious that small sorts should not be encouraged.

Thus far, as to what may be considered points; and we hope that those who wish to indulge in what we must term the luxury of raising seedlings annually, will be able so to fix their attention on the essentials as to select judiciously. They may rest assured that their labours will not be thrown away, for although many singular anomalies will present themselves in the seedlings fruiting, yet there is little doubt the preponderance will be in favour of breeding well, that is to say of selecting on the ground of established good qualities, rather than the reverse; and, indeed, of constantly proceeding farther from the original type, which indeed Nature is generally inclined to do. One thing may be observed, and that is the extreme probability of losing by degrees juiciness, by selecting fruit of high saccharine properties and colour, and from being as it were over-ripened in very hot and bright situations. We believe some of our great fruit raisers had discovered that they lost ground thereby: the produce losing in liveliness what was gained in saccharine properties. In hybridizing, it is not improbable that the parent on one side ought to be so smart in its juice, as almost to savour of the crab; however, this is as it were untrodden ground, the whole question is little more than in its first stages, and we must forbear to attempt to teach where we had better be learning.

It may now, perhaps, be well to offer select lists of some kinds which we think offer superior chances for improving our breeds.

Dessert Kinds.—No. 1, Early Margaret; 2, Early Harvest; 3, Kerry Pippin; 4, Golden Reinette; 5, Wormsley Pippin; 6, Ribstone Pippin; 7, Golden Harvey; 8, Hughes' Golden Pippin; 9, Hicks' Fancy; 10, Pitmaston Nonpareil; 11, Sturmer Pippin; 12, Old Nonpareil; 13, Downton Nonpareil; 14, Ord Apple; 15, Braddick's Nonpareil; 16, Gravenstein; 17, Lamb Abbey Pearmain; 18, Boston Russet.

On looking over this list, we find Nos. 9, 13, 14, 15, 16, presenting smartness of flavour, combined, in the main, with delicacy of texture; these, therefore, should be very eligible for a cross on the one side. Also, Nos. 3, 4, 6, 7, 10, 17, 18, possessing depth of flavour, with saccharine principles, yet several of them capable of improvement in point of mellowness of flesh, with the addition of smartness.

This, then, is an idea thrown out "in the rough," and we do not doubt that a little perseverance for a few years would produce such a collection of improved apples for table purposes as would astonish even the breeders themselves, combining every perfection, viz., high flavour, juiciness, tenderness of flesh, together with keeping and bearing properties. It is, of course, too late now to talk of hybridizing, the season is entirely gone as to that; but let no one who has leisure be daunted from trying his hand at some seedlings from the best materials in his room. When the day comes, an opportunity will at least be afforded of contrasting the results from the natural and the artificial produce. Besides, as before observed, what nice stocks these seedlings make; and as to seedling apples, why, if any person has too many, he may incorporate them with quick in his hedges, or mend existing gaps with them. Let a shoot here and there arise from the hedge, and become a little tree, and it will at least possess one of two merits: either it will be so crabby that unlucky lads who come to taste will scarcely come a second time, or, if good, will be of use in culinary affairs.

Those who are disposed to try their hand this way may wash the seed from the pulp as soon as the fruit becomes tolerably mellow, and, being dried, it may be kept in garden-pots, in dry sand, until the beginning of February, when it may be sown either in pots, in a warm house or hotbed, or out of doors. The former plan, done justice to, will gain a year; and by the latter, care must be taken that Mr. Mouse does not defeat the intention of the expectant sower.

We intend to pursue this subject before the blossoming period, and to point to eligibilities in our other fruits.

R. ERRINGTON.

THE FLOWER-GARDEN.

THERE are so many ways of *preserving plants through the winter, under difficulties*, that we might call it an art of itself; and if we could collect the history of each way, with its success and failures, we could easily draw up general rules, which would be just as useful to us gardeners as to the humblest reader of these pages. With all our experience, gardeners are not the best guides to follow, nor the surest writers in this very necessary business. We are so accustomed to glass and fire-heat, that we can hardly rid ourselves of the idea of security in all cases. The utmost we are called upon in the way of keeping our stock of plants from the frost is by means of cold frames and outhouses, or warm sheds. In these we can keep all our strong-growing *Geraniums*, our old *Fuchsias* and *Salvias*, and a few other things of a like nature; while our *Verbenas*, *Petunias*, and all the small delicate things, are secured by

means of glass and artificial heat. Now, would it not be a good plan to call on such of our readers as have not such conveniences at hand, nor the means of supplying them, to send us reports of their ways of management for the last three or four winters? Saying how many plants of this or that kind they stored; how many they lost or saved out of the number; and how they mean to proceed this winter. The experience of a few winters must have suggested different modes to thousands; and there may be a score or a hundred ways of doing the same thing under different circumstances. All this collected together, read, criticised, and read again, would, in its turn, suggest different ways, from which every section of the community—gardeners and all—might learn some useful hints to suit particular circumstances.

The simplest and most successful way of *keeping strong or full-grown Geraniums*, that I am aware of, is that which I mentioned last week—preserving them in the beds till the middle or end of December, after cutting off one-half of their young shoots in October, and the other half about the time they are taken up, then keeping their roots in a half-moist state in boxes, and getting them out as early as possible in the spring; not later, under any circumstances, than the beginning of April. All this I have proved over and over again, and I have often seen the bad effects of keeping them later in their winter stores; indeed, there is often more harm done by keeping them in confinement after they begin to grow in the spring than by the damp and frost of the whole winter; and nothing is so bad as getting them in too early in the autumn before they are stopped in their growth.

Tigridias should never be taken out of the ground, in this climate, before the end of December, for the same reason, the bulbs not being ripe sooner, therefore not quite at rest, although their leaves may be damaged by early frost. It would be good practice to screen their leaves from the frost as long as one could, and then to cover the beds with something as long as the roots are left in the ground.

Covering beds, in which half-hardy things are left, stands much in need of improvement. Unless they are covered with coal-ashes, the usual process is to lay on leaves, straw, moss, or ferns, and the first layer of either next the earth soon turns mouldy, and begins to rot, causing the soil to turn to that state called *livery* by one of our correspondents—the very worst condition for the preservation of half-hardy things in it. To get over this difficulty, even on our dry soils, I have used a close layer of the small ends of pea-sticks or other brushwood in a dry state, so as to keep the leaves, or other covering, from touching the soil, but taking care that the sides were well packed so that the frosty winds could not play in among the sticks. Another improvement would be to open three or four small passages at equal distances round the bed, when the wind or the weather was favourable, for the purpose of letting out, or driving out, the foul air from under the covering, and to close the passages with a handful of moss, or any thing else, when the hard frosts returned. But, like putting the cart before the horse, the first and best part of the story is this:—As soon as the frost hurts the leaves and stems of the finer *Fuchsias*, *Salvias*, *Cupheas*, *Calceolarias*, and *Heliotropes*—for I would give them also a chance—or any other half-hardy plants that make good root-stocks, or strong necks, or collars, from which buds would push in the spring, cut them down to within a few inches of the ground; then scrape off an inch or more of the surface of the bed to carry away every thing that is likely to turn mouldy under a thatch; cover the whole surface two inches thick with the driest ashes you can find, then the small sticks, after that dry straw or fern, &c. Whatever be the shape or size of the bed, the middle of

it should be covered higher than the sides, in order to get a fall for the rain, and so get it away from the bed altogether, if possible; for, after all, wet and damp are more dangerous, or, at any rate, more difficult to guard against, than the hardest frost we ever have in this country. After trying many ways this is the most effectual, plan I know of, when carefully done and attended to afterwards. When I first left the *Agapanthus* out in the bed all winter, I had great difficulty to save the leaves from damping off; it was then that I tried the layer of small sticks, in order to let in a current of air at times for the use of the *Agapanthus* leaves, but I found the benefit of the plan so useful that I recommend it in all cases of this sort. A lady, from Ireland, who visited the garden some years back, told me that she had a large root of this *Agapanthus* which stood out all weathers for many years, and all the protection she gave it was a barrow-load of ashes, spread out to four inches thick, and rising in a cone in the middle, over the heart of the plant, without attempting to cover the leaves all over; the frost soon cut them off, and when she took off the ashes, in the spring, she cut away the remaining parts of the leaves. Sometimes this plant was forgotten until the frost killed all the leaves quite to the ground, and she never found that that was any harm, for the plant flowered every year equally strong. Ever since, I have cut off the leaves of our plants before the bed was finally covered for the winter—some time in December; from October to that time the plants were protected only by a layer of fern, packed in among the leaves, leaving the top part of them free to the frost.

Speaking of *Agapanthus*, it may be useful to some to learn that worn-out plants of it in pots will do very well for planting out in beds, and that in the course of three or four seasons they will be improved to such a degree as to do for pots again, much better than plants reared in the usual way. There is no plant more useful for out-door decoration in summer than this *Agapanthus*, or Blue African Lily, as they call it, and no plant can bear so much hardship or do with less attendance; and if the Lord Mayor was compelled to keep some plant in flower, for the summer months, on the top of St. Paul's, this is the only one in the catalogue that would be likely to suit him. Yet a long course of hard management, cramped in pots, will tell upon it in the long run, and this way of planting out such plants is the best way to bring them round again, and also the best way to get up large plants in a short time from little side-suckers; so that, independently of its great beauty and novelty in a bed in the flower-garden, I think I have made out a case in favour of turning out the *Agapanthus* into beds.

Another way of getting over the winter with a bed of half-hardy things is this:—Let us say that a protected bed of *Cupheas*, *Salvias*, *Verbena venosa*, or any other plants require renewing with fresh soil, and that a few fine days in January or February offers a good opportunity for getting this work done. It is not a good plan to replant such a bed as soon as it is renewed, and then to cover it over for the sake of the plants; but the plants must be saved while the bed is getting mellowed by the weather, and the simplest way of doing that, is to plant the roots in the shrubbery, under some large bush, covering them with light soil, and then with some leaves or dry litter. We have often kept plants this way for a month or six weeks, and sometimes for the whole winter. An old tree, out of the way, is a good place also:—pack the roots all round the tree, and the bottom is sure to be dry,—the first consideration; then cover them with straw, placing the ends up against the body of the tree, and tying them round with a rope or string, making quite an umbrella all over the plants or roots. I have saved plants this way, after losing part of the same sorts under the stage of a greenhouse.

Again, when half-hardy plants that have been growing in pots through the summer are to be housed in sheds, cellars, or under the stages in the greenhouse, it is much the best plan to turn them out of the pots, and to plant them in as much soil as will cover the balls, and no more; the pots will be useful for other plants, and the roots of the stored plants can thus be kept in an uniform state—not quite dry, but not wet; to prepare them for this change, water the pots well two or three days before the plants are stored; every part of the ball ought to be wetted through and through by this watering, and the whole be well drained of the extra water before the storing takes place; then the soil for packing the balls in should be a little moist,—damp sand is the best; and when the whole is finished, an inch or two of soil or sand, in a perfectly dry state, should be placed over the whole surface; this very dry covering is the best part of the whole process, as it prevents any damp from below, and still will keep the roots and soil in a medium state for a very long time. All the *Fuchsias* will keep very well this way in a shed, if hay or straw is put over the tops in hard weather; roots of *Salvia chamædrioides* and *patens*, of the common *Scarlet Lobelias*, very weak roots of scarce *Dahlias*, and many other things of the same description, we have kept repeatedly, just as here described. Now let us hear how our readers have managed.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

A FEW WORDS WITH OUR FRIENDS THE WINDOW GARDENERS.—BULBS.—In the cold days of winter, how cheering do *Crocuses*, and *Snowdrops*, and *Tulips*, and *Hyacinths*, and *Narcissuses*, &c., look in a window, when all is dreary and desolate without. The two first I have mentioned are rather impatient of all fostering, and cannot, without much trouble, be made to bloom out of their usual time. They who have them in a garden, and wish to stock their window with them as early as possible in spring, may lift them in patches a month hence, pot them, and introduce them into the window when the buds begin to swell, keeping them in the interval where the pots shall be protected from frost and drenching rains, though a fair soaking will do them little injury if drainage is secured, and freezing prevented. As the flower will depend more upon the matter stored up in the bulb than upon present treatment, if the necessary amount of moisture is supplied, the plants will generally do as well, if flowering merely is considered, if potted when the first growth appears above the ground. In the case of all the other bulbs generally grown in windows, and especially when bought in a dry state, the sooner they are potted now, the better they will thrive; as whether bloomed in window or greenhouse, a fine flower-stem greatly depends upon getting the roots in advance of the leaves. Copious lists of the most useful varieties have already been given, and directions for treatment have not been wanting. For the sake of new beginners, some of these may be cursorily glanced at. 1st. *Soil*.—Rich sandy loam will be the most suitable. The mud and ground stone, cleared from a highway, laid up by its side, and allowed to consolidate for several years, when dug into, and mixed with a small portion of sweet, very rotten dung, or decayed vegetable soil, such as tree leaves, will answer admirably, not only for this purpose, but for nine-tenths of the plants usually grown in windows and small greenhouses. 2nd. *Size of Pot*.—This should be small rather than large, to enable you to have more pots in the same room, to move them more easily, and to afford an opportunity for packing a greater number, when in bloom, in vases or baskets. With proper attention as to watering,

&c., a four-inch pot will grow a hyacinth admirably. The same size will do for three common-sized *Tulips*, and from four to half-a-dozen of the *Crocuses*. A large *Narcissus*, such as *Grand Monarch*, would require a five or six-inch pot. 3rd. *Potting*.—Drainage must be attended to, and that is assisted by placing a little green moss, or chopped straw, over the usual broken pots, &c. If the bulbs are afterwards, when blooming, to be plunged in vases, or baskets, packed in moss, then, when potted, they may stand so high as merely to have their base end covered with soil; but if designed to be bloomed in the pots, then the chief part of the bulb should be covered, alike to keep it firmer in its place, and to prevent the evaporation of its juices in a dry heated room. 4. *Position after Potting*.—Any moderately cool, dark place will do, and rather damp than dry, though the damp must not be in such excess as to cause rottenness. Where only a moderate number of bulbs are grown, most housewives could find, or make, a suitable corner for them. Failing that, or where many are grown, choose an open place out of doors, for a bed that will hold the requisite number of pots; raise it higher than the surrounding soil with rough ashes, or any other matter amongst which worms and slugs have as much disinclination to crawl. On this place the pots, fill the spaces between them with similar material, and cover over to the depth of three or four inches, and the future trouble will consist in throwing some litter over the bed in severe frost, defending it from long-continued rains, keeping mice at a respectful distance either by catching them, or surrounding and mixing with the covering of the bed a fair portion of chopped furze, which their burrowing noses do not like at all. The raising of the bottom platform is to prevent water lodging, but this, as well as securing from heavy rains, may be dispensed with if you could secure a corner of a shed, or stable, or byre, for such a purpose. The great thing is to have the pots crammed with roots before removing them to the window, and this the course recommended tends to foster. The heat remaining in the soil causes the bottom of the pot, as a whole, to be warmer than its surface, and thus roots are encouraged downwards before there is much expansion upwards. The difference would still be greater if there was merely one inch or so of covering, and I have spoken of more merely because, if a slight covering was given, and future protection neglected in very cold weather, the incipient flower-stems would be injured. When first moving the bulbs out of darkness into light, it will be an advantage to shade them a little at first by paper funnels, with a small hole in the narrow upper end, and just so far different from the conical wraps the grocer uses for half-pounds of sugar. Sometimes the florets of hyacinths cannot expand freely, owing to the shortness of the flower-stalk; and the assistance of the funnel lengthens the peduncle, and thus remedies the evil, by giving the florets space enough to show themselves. I would follow the same course exactly with bulbs to be placed in glasses, and thus successions can be easily secured. When plenty of roots are in the pots, turn the plant topsy-turvy, and then, taking the ball in both hands, agitate it and squeeze it gently in a pail of water, and you may soon get the roots as clean as you like; and all that remains is merely to drop them into the glass, and fill it with water, giving a fresh supply every few days. I have elsewhere spoken of the superior mode of packing them in ornamental vases.

Cold Pits.—Those who would have their windows well supplied, and not purchase plants to any great extent, can hardly get on without one of those useful assistants, where plants may be removed when past their best, and others brought from it that are showing promise of future beauty. If covered with glass, any thing may be done with such pits in *summer*; for by merely lessen-

ing the air, *Achimenes* and other half-stove plants may be brought forward for the windows, as well as if grown in a regular hotbed. But in winter, without artificial heat, their use should be to *preserve*, not to *grow*. Sometimes we are the cause of misconception, because people will look merely at one side of a question, and not at all its details. For instance, some time ago we had visitors in April and the end of October. At both periods we had hundreds, I may say thousands, of plants standing in turf and other temporary pits, and at one of the times, as it had been a little frost, and a keen north wind *then*, a long pit was protected with straw hurdles, and the south side merely tilted up to allow the softer air, heated by the sun, free entrance; there being on none of these pits any glass whatever. The plants were looked at, certainly; but nothing said respecting them. A short time afterwards, the gardener of one of these visitors called, looking somewhat strange; for, instead of the usual pleasant smile, there was something about him that conjured up the idea of a man whose nose had come into contact with a nettle. Out it all came before long. He had been promised a good brick pit, I forget of how many four-feet sashes length; but as Mr. F. had so many pits, without either bricks or sashes of glass, why could not he do the same, &c.? It was satisfactorily explained—that, though there *now*, the plants had *not* and would *not* remain there without glass during the winter, though many of the hardier ones might do if waterproofed coverings were provided, and the walls rendered damp proof, though nothing would be gained, the extra labour soon eating up the expense of a permanent glass covering. Our friend, we believe, got his pit, and I rather think a medium of heating into the bargain. Did time and space permit, many similar instances might be adduced as to persons expecting to get blooming plants from cold pits in winter, while all that *generally* could be expected was to keep the plants sturdy and vigorous there, in order that they might blow freely in spring and summer. As connected with this matter, we are furnished with two questions from a correspondent, which I shall notice here, because likely to be interesting to those having limited space, and yet wishing to do the very most with the means within their reach.

1st. Can I keep *Heliotropes*, *Fuchsias*, *Geraniums*, *Calceolarias*, *American groundsels*, *Verbenas*, and *Petunias*, in a cold brick pit at the same moderate temperature? Yes.

2nd. Can I keep in a second [or screened, I hardly know which] portion of it (brick partition) *Camellias*, *Cinerarias*, *Myrtles*, &c., with any chance of a successful bloom? Yes, as to your keeping the plants. Yes, as to getting a nice bloom about April and May; but No, as to your getting bloom in winter. This latter result it should be your object to prevent. A *Myrtle*, indeed, if the buds are formed, will open in a low temperature; but then it would do better in your sitting-room than in the variable atmosphere of a cold pit. So of a *Camellia*. You may have it so forward that a few sunny days would swell its buds almost to the opening; but then if you had a week of such weather that you neither could give light nor air, your fine bud would be injured for ever. None of the flowers you mention will open, and keep open, their blossoms in a healthy state, if the medium night-temperature ranges far below 45°, or with much less than 10° higher for sunshine. I should say, therefore, with respect to all your plants, keep them *healthy*—do not *grow* them. These simple queries stir up a number of suggestions; at present I can only mention the following:—

1. *Arranging the plants*. You have not stated, under *Calceolarias*, whether they are shrubby or herbaceous; if the former, they will stand rougher treatment rather than the latter. The first may go anywhere; the second

should go along with *Cinerarias*, *Heliotropes*, and *American groundsel*, as these will require a little more moisture in the atmosphere, and not quite so much air as the others mentioned. It will always be safer to err on the side of dryness, however, than the reverse; and though this division would be advisable, no harm would arise if all received the same treatment, though if the temperature get very low, the *Heliotrope* will lose all its leaves.

2. *Dry Atmosphere*.—This must be secured by having a dry floor, raised above the surface of the ground, and watering each plant individually and carefully, spilling as little as possible. In a succession of dry days and fine weather, a dusting from the syringe now and then, about eleven o'clock, will be of service to *Cinerarias*, *Calceolarias*, *Heliotropes*, &c.

3. *Position*.—For combining light and freedom from sudden changes, a medium distance from the glass may be from one foot to eighteen inches. If farther distant, the plants will be drawn; if nearer, subject to sudden heats and colds. In deep pits, where an open, temporary floor of boards is provided, or where there is a regular stage set in, the plants may stand nearer the glass, because the body of enclosed air prevents their being suddenly heated or suddenly cooled. Hence, with a moveable floor or a stage, a deep pit is better than a shallow one, and useful for many things in summer.

4. *Air-giving* may be administered freely when the external atmosphere is mild, and ranging about 40°. In frosty weather, it should chiefly be given in bright sunshine, and the sashes shut close early in the afternoon, so as to enclose an amount of sun-heat. If the frost is likely to be severe, cover up before the sun goes off the lights.

5. *Protection*.—First: Sides and end of Pots. In severe weather, a nine or fourteen-inch solid wall is soon penetrated; and when once the frost reaches the inside, the internal heat is soon dispelled by radiation. Hence the use of hollow walls. Failing that, the next best thing is not *dung*, nor damp earth, but dry straw, tied neatly against the walls for several inches in thickness, and which once put on, may remain the whole winter. The wall plates back and front would keep it dry, and so long as it is so, a powerful frost makes but a weak impression. Secondly: For the Glass. Whatever will keep the glass clean, enclose a body of air, and withal be waterproof, is next to perfection, if easily managed. I must now refer to past volumes for the elucidation of the principles, which are just identical with the cause why dew is formed upon clear nights, and not in cloudy ones.

6. *Removing the Protection*.—When? Whenever the outside thermometer ranges from 35° to 45°, remove in the morning. When frosty, but sunny, remove late and put on early, with a little air at mid-day. In cold, dark, frosty weather, when the thermometer never gets above the freezing point, and that in your pit is ranging from 38° to 30°, uncover not at all. In continued snow-storms keep shut up; in increasing frost do the same, only it may be advisable to throw a little more litter over all, to prevent the thermometer *within* getting dangerously low. But at the freezing point, or even a degree or two lower, you will be perfectly safe with a week or a month's seclusion from light, though eight days in a temperature of 45° or 50° might send the whole lot, in such circumstances, to the rubbish heap. In fact, in all such extreme cases, the low temperature within, if not too low, is our *sheet anchor*; but the covering must be gradually removed, and not taken off at the first change of weather.

R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC STOVE PLANTS.

ELEOCARPUS DENTATUS (Toothed E.).—A very elegant stove shrub. Nothing can exceed the delicacy of the pure white-fringed flowers of this very pretty plant. If any one knows the elegant flowers of the Alpine *Soldanella*, he will have a good idea of the pretty blossoms of this *Eleocarpus*, only the flowers of the latter are white instead of blue, and are produced on short woody stems; several on a stem from the main branches of the shrub. It flowers in spring, and lasts three weeks or a month in bloom. The leaves are of a medium size, ovate and dentate, and of a beautiful bright green. A plant every way worthy of cultivation. 8s. 6d.

Culture: Propagation.—This lovely plant is propagated by cuttings, and the best time for it is in early spring. Take a new or a clean pot, five inches across, or so near that size as to allow a bell-glass just to fit within it. Drain the pot well, by laying over the hole at the bottom, a largish piece of broken potsherd, prop this up on one side a little, with a thin small piece of the same, then lay round and over it a layer of rather less pieces, and upon this layer another of still smaller pieces. This drainage should occupy at least one-third of the depth of the pot, then cover the drainage with some open material that will prevent the fine soil from choking it up, a thin layer of what remains in the sieve after sifting the compost, will serve the purpose, or a thin layer of moss will do. After that fill the pot to within an inch of the top, with a compost of peat and loam in equal parts, freely mixed with as pure sand as can be procured. Then fill the remaining inch with pure sand alone. Give a gentle watering to settle the whole, and set the bell-glass upon it, giving it a slight pressure to show a circular mark. Then prepare the cuttings. Take the young tops of the shoots, not the very gross ones, but select rather the weak side shoots, and from them take the cuttings. These are not so full of sap, and are consequently less liable suddenly to damp off. Form the cuttings, by first cutting them the right length, 1½ to 1½ inch will be quite long enough. Smooth the bottom with a clean horizontal cut, with the sharpest knife, and cut off the lowest leaves close to the stem, without wounding the bark. The cutting should then have no more than two entire leaves left upon it, and is ready to be inserted in the pot. A small stick made quite smooth, and about the thickness of a crowquill, is the best dibble. Make a hole with this close to the circular mark made by the bell-glass, insert the cutting into the hole, arranging the leaves so as to point inwards, then press the sand firmly to the base of the cutting, and proceed so all round, but close to the mark, till the circle is completed. After that have a little dry sand, and let a portion run out of the hand to fill up the small holes made by the dibble, pressing the sand to the bottom of each cutting. Then give a final watering to settle all close and level, and fix the bell-glass over them. The best situation to place the cutting-pot in, is to plunge it in a bed of tanner's bark, in a propagating house, or set upon a heated bed of fine charcoal, with the dust sifted out of it, or a heated bed of sand or coal-ashes. When not plunged, it would be of advantage to put a large hand-light over the cutting-pot and bell-glass, the object being to prevent too much evaporation till roots are formed to take up a supply. In bright sunny weather, the cutting must be shaded, either by a canvass covering on the outside of the glass, or large sheets of paper over the bell-glasses and hand-light, inside. As at that season there are numerous other plants that will be under the same process of propagation, the same trouble of shading, will, as a matter of course, serve the whole. The formation of roots, will, in most cases, be known by the cuttings

beginning to grow. When that takes place, lift off the glasses every morning for an hour or two, for a week, to give fresh air and strengthen the shoots. Then pot them off into very small pots, and replace them under the hand-light for a short time, till fresh roots are made, and then inure them gradually to bear full exposure to air, light, and sun.

Soil.—These plants have fine fibrous roots, and therefore require a light, but not too rich soil. A compost formed of light loam, peat, and leaf-mould, in equal parts, with a due proportion of sand, we have found to grow them satisfactorily.

Summer Treatment.—Pot the young plants in March, and again in July. Older specimens will not require the latter potting, a top-dressing in September will be all they need. The heat they require may be denominated moderate for a stove shrub. They will thrive in a temperature where an *Ixora* would starve. After they have bloomed, they would be benefitted by a month's exposure in the open air in some warm sunny nook, due care being given in supplying them with a sufficiency of water; here they will acquire a hardiness of constitution that will carry them through the dark days of winter unscathed. There are several stove plants of hard woody character, like this *Eleocarp*, that would be better for a month's summering out-of-doors, provided the situation where they are placed is sheltered from cold, heavy winds, or draughts of air, caused by a too close proximity to buildings.

Winter Treatment.—This is simple. All that is required is a lower temperature, and a less quantity of water at the root, together with a much drier atmosphere in the air of the house. Like most of the inhabitants of the stove, this plant loves light, and more especially light in winter; place it, therefore, in a favourable position to receive its due share.

Insects.—This plant is a remarkably clean one, very few, if any, insects affect it. The red spider will make an habitation amongst its leaves, if there are any plants in its neighbourhood infected with it. The usual remedy must be immediately applied, namely, the sponge dipped in tepid water, and every leaf minutely and diligently washed with it, not forgetting the buds and stems also. Other insects, such as the *mealy bug*, and the different sorts of *scale*, will attack this plant, also, in a foul house, and may be got rid of by the same means; but as we trust that all the readers of *THE COTTAGE GARDENER* are cleaner in their plant-houses, we will not suppose such a thing as a foul stove possible. T. APPELEY.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS.

FUCHSIAS (*Mr. Epps*).—Bright scarlet, brighter, perhaps, than any other, without being anything extraordinary in form, will do. Although we have many good dark fuchsias there will be room for this. The corolla forms a good contrast, and the sepals reflex just enough to show it off to advantage. Why has it no name? Call it *Fire King*. (*A. M.*)—Not so good as old *Corymbiflora*. *Great Western*; we noticed this at the show. It is certainly the largest of all the pale varieties by a good deal, and, therefore, will be a most remarkable plant in collections. (*M. D. L.*)—No. 1 is too much like *Riartonii*, if it be not it; and No. 2 is not so good as *Globosa major*; neither of them can be useful. (*J. J., Birmingham*).—No. 3 is the only one of the whole lot worth even trying to grow, and, unless the pale part will come lighter, it may be thrown away.

DAHLIAS (*T., Rochampton*).—Yellow dahlia, an average flower, no better than half-a-dozen we already possess. No. 2, creamy white, is of good general form, and well up in the middle, the inside of the petals yellowish

gives it a very novel appearance, and the outline is better than average. If it be uncertain, let it out cheaper, than people may afford to buy pairs.

STYPHELIA (*X. Y.*)—The *Styphelia* tribe have all star flowers. The bloom sent is one of the largest; but for the fetid smell they would, doubtless, be generally grown, for they give little trouble.

HOLLYHOCK (*A. D.*)—*Queen of the Mottles*, no use whatever; there are fifty better thrown away this year.

FLORISTS' FLOWERS CULTURE.

THE PINK.—At page 402 an essay on the culture of this elegant and fragrant flower was commenced, and we shall this week resume it. *Soil and situation* were pretty fully considered in that place, and

PROPAGATION is the next part of the subject. There are three ways in which the pink may be propagated: first, by seed; second, by pipings; and third, by layers.

By Seed.—It is only by seed that new varieties can be obtained. In order to make something like a certainty in obtaining superior kinds, great care should be bestowed upon selecting the kinds to save seed from. We cannot, or ought not to, expect good flowers, if the seed is gathered from any that will produce it. Generally speaking, the most free seed-producers, are the worst breeders of what we florists term good flowers. In truth, we shall find that the single-flowered varieties produce the best and greatest quantity of seed, so far as mere increase is at issue; but though even a florist would say that a single-flowered pink was pretty in one sense, yet he would condemn it as utterly useless to him as a flower to be cultivated, and would, most certainly, send it to the dunghill as soon as its flower opened; a sad want of taste, the mere lover of flowers would say; but it is to such determination of tolerating no flowers but such as have certain *properties*, or forms, and arrangement of colours, that we possess so great a number of beautiful varieties of the pink, which even the botanist, as well as the admirer of Flora, is compelled to admit are exceedingly handsome, and improvements upon the small pink as it is found in its native wilds. To our amateurs and cottagers, as well as florists, we say, *raise seedlings* every year. We are far from perfection as yet, and the humblest amongst us, the poorest cottager, may raise seedlings quite as well, and as good too, as the most scientific florist; the grand point in the business being attended to properly, that is, the selecting the best flowers from which to save the seed. Now, the most double flowers, as might be expected, do not produce seed, in fact, if they are quite double, they cannot seed at all, because the productive organs of the plant are converted into flower-leaves. Seed must then be looked for in the flowers that are only semi-double, and have every good property, such as roundness of form, even-edged petals, the lacing or edging even and distinct, in laced flowers. In selfs, the centre should be all of an uniform colour, and the flower should be of a moderate size. The circumference should approach to the size of a half-crown at least. From such save seed. In order to ripen it, protect it from heavy rain and dew, and pull away all decaying petals. We have seen many a fine pod of seed moulded to such a degree, as completely to destroy the seed, for want of a little shelter. A piece of glass with a hole at one side, to fit tight upon a stick placed at a right distance over the seed-vessel, is a good protection. As soon as the seed is judged to be ripe, let it be gathered and separated from the pod, dried moderately, packed in brown paper, and placed in a dry drawer in a dry room, till the sowing season.

This seed so carefully selected and dried, and preserved till spring, is so valuable, that its price cannot be estimated. It is quite possible it may produce Pinks of a

superior kind to any in cultivation. Even one really first-rate, superior to any known variety of its class, will be worth from twenty to fifty pounds, which sum would be quite a set-up to an amateur or cottage florist.

Time and mode of sowing choice seed.—Such as we have described above will be worthy of every care and attention. Sow it in March, in shallow earthenware pans, or wooden boxes placed under a frame without heat. Set the pans upon a stratum of coal-ashes, and carefully close every crevice, to prevent slugs from entering. Cover this frame up every night, to keep out the frost; give abundance of air during warm sunny days, and water very gently, whenever the surface appears dry. The seeds, if good, will quickly germinate, and will then require particular attention, to prevent them from damping off. This attention will consist of giving air every day, and even on very warm sunny days pull off the light entirely. The watering, also, must be very judiciously performed, giving it in the mornings only of such days as are likely to be sunny. When they have attained a sufficient size to be handled, let them be carefully pricked out—which means transplanted with a small stick—into similar pans or boxes, replaced in the frame, and kept there till they have six or eight leaves each. They may then be fully exposed to the weather for a week or two, and after that be planted out, four inches apart, into a bed prepared according to the directions at the page referred to above. By the autumn they will be strong plants, and will all flower the following season. Then will be proved whether there are any improvements; whether there is a decided hit, or a complete failure. If the former, rejoice in moderation; if the latter, do not despair, but try again with renewed vigour, and a firm determination never to give over trying till success is achieved. Perhaps some one of our cottage readers may say—I have no frame, and, therefore, I cannot raise seedling Pinks. Stop a bit, my good friend, you need not give that idea up yet. You may choose a warm border, sow your choice Pink seed upon it in April, transplant your seedlings in June, and get them tolerably strong before the autumn. Protect them through the winter with hoops and mats, or some other cheap covering of your own make, and you will succeed in blooming some the first year, and all the second. Sow away then, and exert your ingenuity, and we promise you much enjoyment, if it be only the hope of success, and the pleasure of watching, attending to, and seeing the progress of your nursery of seedling Pinks.

T. APPLEBY.

(To be continued.)

THE KITCHEN-GARDEN.

TRENCHING VACANT GROUND.—There are few operations in the kitchen-garden of more importance to the well-being of its produce than the proper tilling of the soil. The heavy and successive cropping to which this department is, in most cases, subjected, renders a proportionate amount of artificial assistance necessary, to enable nature to sustain the many demands made on her resources; and not the least of these auxiliary helps, is that judicious preparation of the soil to the greatest possible depth to which the fertilising influence of the atmosphere can reach. Every one who has walked through a garden in summer, after a lengthened period of dry weather, must have noticed the blue, stunted appearance of the whole *Cabbage* tribe; *Peas* often milled before producing a single pod; *French Beans* a prey to red spider; and the leaves of *Strawberries* pleading, in language which cannot be mistaken, that they want more food; these evils, though, to a certain extent, attributable to the season, over which we have no control, are yet partly due to the situation, over which, by

using judicious means, we suppose we ought to exercise a considerable influence, modified, of course, by the circumstances of the case and the means at command. Previously to commencing operations, let us examine the mischief, as the first preliminary step to the suggestion of a remedy. It is well known the first effects of dry weather on vegetation in a growing state, is, by withdrawing the moisture from the soil nearest the surface, to send the roots to seek for more nutritious food, either laterally, or by descending deeper for it; now this latter can only be done where the ground has undergone a course of tillage to such a depth as to prepare it for such an emergency, and we need hardly point to trenching as the only way to secure so desirable an end. But, independent of the mere loosening of the soil to a certain depth, other things call for our attention—the nature of the ground to be operated upon, and the materials best calculated to amend that ground; and we think we are not far wrong in asserting, that it would be as absurd to prescribe the same course of treatment for a dry sandy, or gravelly soil, and a cold clayey one, as it would be for a physician to apply the same medicine for disorders differing widely in their origin and effects. True, it may be said, that dung can never be applied wrong, but no more can food, except in excess; and much as we admire its renovating influence, yet we must not be diverted from our purpose of endeavouring to remedy a defect in the capabilities of the soil, by being told, “a good dunging would do it all for us.” Need we ask how much dung it would take to avoid, or remedy, the evils noted above, as resulting in a hot season on a dry, hungry soil? Abundance of that useful article would certainly accomplish that object, but let us see if it cannot be attained by less expensive means, by a careful consideration of what ingredients are necessary to give the soil, or rather the subsoil, an altered character, so as to fit it for the purpose it is destined for, which merely moving it and putting it in its place again, can hardly be expected to do. As an example, let us suppose the garden to consist of a *strong and rather stiff soil*, resting on a cold, heavy, but not altogether impervious, clayey loam, and we shall also presume the surface-soil to have been repeatedly dug and manured for a series of years without the bottom having been meddled with, so that its original condition is no further altered than what may be effected by the washing down of the juices of the dung which has been placed above it; but still its crust-bound surface presents an impenetrable barrier to the roots of every plant but such as Horseradish, Coltsfoot, and some other deep-rooted weeds. Such a case demands, and deserves, careful trenching; and the dry state the ground is often in at the end of summer favouring the wheeling or carting of materials, as well as being advantageous to the ground, makes it advisable to commence operations immediately the necessary ingredients can be placed on the ground, which in so far as trenching is concerned, are those necessary to fertilize the lower strata or subsoil, which we, by all means, advise to be again retained at bottom; a certain quantity in the course of operation will find its way to the top, and will do good there, as well as some of the top-spit will get at the bottom, but the great bulk of both we mean to retain in their former position. We need hardly enter into details, which most labourers know pretty well; suffice it to say, that we mean the top-spit kept to the top again, and the bottom dug or well-worked over, with the material most likely to loosen it and keep it in that condition. Lime, when it is to be had in any quantity, is good for that purpose, and so is chalk, but not so effectual; ashes may also be used with advantage, or it might be peat-earth, but of the effects of this article we have not had so much experience; but the material we like best, and the one we have seen the best results from as a subsoil fertilizer,

is *mortar rubbish*. This article, when it can be had in sufficient quantities, is assuredly the best of all for maintaining an open friable texture to the soil placed at such a distance from the ordinary action of the atmosphere; besides, its caustic properties being in a measure gone, the roots of most plants seem to luxuriate in it when they find it lying in a sort of a vein or seam between layers of the ordinary soil, which we have never seen them do when fresh lime has been placed in such a position; and though the powerful action of quick-lime may operate more rapidly in disengaging those bands which tie one particle of the tenacious matter with another, yet the mechanical powers called into operation in the blending are the same, and after a lapse of years the mortar rubbish (being often used more liberally) is generally the most useful. However, as that cannot always be obtained, we advise the use of other things that can be had. Charcoal-dust is good, in fact, too good to be placed in the bottom of a trench; but coal-ashes are not unsuitable when all cinders have been taken out; but whatever is used, let it be well worked into the soil, and if needs be, dung may be placed between the first and second spits; certainly we would not advise dung to be any lower, unless for special purposes, as Carrots, Parsnips, &c., but for most crops, whose roots do not go directly down in a straight direction, we say, keep it more near the top, that the rains may wash it down lower. But the manure used in trenching, must be regulated by the intended crop on the ground, some of which, as asparagus, requires special treatment; but this we shall refer to hereafter, confining our remarks, in the present paper, to the improvement of the ground for general purposes, and in recommending mortar-rubbish, which we presume to be the chipping of bricks that have been cleaned, with occasional broken ones amongst it, as well as old plaster, &c., we by no means deprecate other things, having a like opening tendency; but, somehow, we think lime-rubbish has a chemical action on the soil, peculiar to itself, and grateful to vegetation; on that account we advise its use to all stiff-bottomed soils, and if it be less slow in its pulverizing effects than fresh lime, it is certainly more durable. We will reserve our remarks on the treatment of soils of an opposite nature until another time.

CAULIFLOWERS.—See that slugs and other vermin are kept away. When moist weather follows after a lengthened period that has been dry, these gentry sally out of their lurking places, and commit great devastation. Occasional dustings with lime, soot, or wood-ashes, will keep them away. It is time now to prepare some ground to plant out those that are to stand over the winter in hand-glasses, but about the 20th is time enough to plant them. In the meantime, see that the glasses are all in order, if that has not been done before, as we like September best for all painting, glazing, or repairing; however, get them in readiness, as well as the ground.

LETTUCE and ENDIVE may now be planted for spring use. In planting these useful vegetables, the ordinary summer instructions of choosing moist, dull weather, must be reversed, and a dry, sunny day taken advantage of, if possible. The reason is obvious; in summer, the loss the plant sustains by evaporation in a bright, dry day, is more than it can well bear at a time when it has just undergone a rather severe operation,—that of being removed; while now, that evil is less than the one to be apprehended from the attack of slugs, &c., so much more numerous or destructive in moist weather than in dry; added to that, plunging on newly-dug ground, in wet weather, is very hurtful, and, taking everything into view, we prefer dry weather at this season.

CELERY must be earthed-up on favourable occasions, when dry. That intended for latest use, ought to be blanched with something more likely to preserve it from worms than the common rich earth of a kitchen-garden. We have done some with coal-ashes, with a very good result, using only a little next to the plant; behind that was soil. As many gardens, known to produce the best celery, are likewise notorious for its keeping badly, we advise them to try this, or some other simple remedy.

MUSHROOMS.—Prepare more dung for a late bed; if you are furnished with a house purposely for them, the trouble and uncertainty is much lessened. Notice beds that have been made recently, that they do not over-heat, if so, it is better to remove a good quantity of the dung in the centre for a day or two, than deluge it with cold water; those made up, and in a mild, genial heat, must be spawned and earthed over. J. R.

MISCELLANEOUS INFORMATION.

NEW PLAN OF BEE-KEEPING.—No. 3.

It will now be my endeavour to prove from facts that the proposed new system of bee-keeping, as suggested by me, is both simple in its management and promising in its results.

What first gave me the idea of it, was my trial last summer of the artificial swarming system of Dr. Scudamore, to whom I have before frequently alluded. I observed that the swarms so formed, being located of necessity on the stand which the parent hive had occupied, became *highly prosperous and very heavy*. Thus one of them (of May 21, 1850), in *six weeks'* time, had attained the weight of 51 lbs., *nett contents*; a second, in the course of the same summer, upwards of 40 lbs., also *nett*; and a third, which had an old queen, 32 lbs. I observed, also, that this exchange of the swarm for the parent stock, drew away from the parent hive all the bees, with few exceptions, which had once been out in the open air; for they, on their first excursion after the change of hives, naturally flew back to the place, now occupied by the swarm, where they had been used to find their home; and, indeed, this only could account for the weight of honey, so much *greater* than usual.

It then occurred to me that swarms which issued *naturally*, in the ordinary manner, might be similarly treated, and with the like *success*; and thus I considered *large prime swarms* might *always* be secured; because, however small they might be on their first establishment, they would, in a couple of

days' time, attract to themselves all the full-grown population of the parent stocks. But I, at first, mistrusted the final advantage, because I had observed, in the case of swarms *artificially* formed, that the *old stock* frequently became so much weakened by the withdrawal of its population, as to run the risk of perishing; in fact, in one or two instances which came under my observation, it did actually perish. I accounted for this in the following manner: that for *full seven weeks* not a young bee was, or could be, hatched in the hive, for it would take three weeks to raise a young queen, and when raised one week at least must elapse before she would be in a condition to lay, besides the three weeks even then to pass before these eggs could become perfect bees. Thus, the hive's prosperity would depend upon the quantity of brood left by the old queen at the time she was expelled from the hive; if *much*, the stock would be likely to do well, and become very heavy; if *little*, it would gradually grow weaker, and perish at last. All this is supposing the hive were left open, and too many bees suffered to join the new swarm, of which, without much precaution, there would be a great danger. Again, however, I reflected that if the first swarm issued *naturally* (in which case the old hive would be almost sure to be full of brood), a young queen would be ready to issue from her cell in a few days, and thus, not much more than half the time above-mentioned would elapse

before brood was again hatched in the hive, to replace the daily loss in the fields. I also considered, that under these circumstances, the great reduction of population in the old stock, so far from being a disadvantage, would actually prove of great use, because there would thus hardly be a sufficient quantity of bees hatched at the time of the issue of the young queen to prevent her from destroying her rivals, and thus there would be no after swarms or casts. Such was my reasoning; the result of my experiment* will show how far it was correct.

I had a natural swarm on the 15th of May last, which issued from a common cottage-hive of moderate dimensions. Owing to the awkward situation in which it settled, we were obliged to blow the smoke of burning wood upon the swarm, for the purpose of driving them elsewhere. Many of the bees returned home in consequence, but at last the swarm rose, and re-alighted on a branch of an apple-tree, very conveniently for hiving. It was then put, in my absence, into a large hive, 12 lbs. in weight, of unusual size, the dimensions being severally 15½ inches in diameter, and 12 inches high, inside measure. When I came to inspect my swarm the following day, it appeared so insignificant in its roomy abode, that I looked upon myself as extremely unfortunate, for I had depended on this swarm for the main experiment of my new plan. I immediately had it placed, however, on the old stand, removing the parent stock to a new position. From this time I carefully watched the course of events. My swarm, in spite of the very unfavourable weather, which we had in the beginning of June, contrived to live on, and thrive. But by the 15th of that month, the hive was not more than a third full of comb, but it was evident that the population was much increased, and was already, in fact, very large. With the 15th, came a favourable change in the weather, and my bees worked wonders. This was evident, when on the 25th of July I weighed the hive, and found it to contain 41 lbs. of honey, bees, &c., i.e., independent of the hive itself! The comb was also worked quite down to the floor-board.

But what of the old, or parent stock? It appeared literally *tenantless* for several days, with the exception of a stray bee or two, which occasionally appeared at the entrance; but it gradually recovered itself, became very populous, hatched out a great quantity of drones, threw no second swarm, and weighed on the 25th July, 28½ lbs., nett contents, part of which was worked in a nadir! In this instance, then, I had seen the correction of my reasoning fully borne out by the event.

Strictly speaking, however, this is the only direct proof in favour of my new system, which I have to bring forward; but I will mention here my treatment of two other hives; which tell almost equally in favour of it. A swarm was forced to issue (artificially) from each on the 22nd of May last, and each swarm was made to take the place of the old hive, which was removed to a new stand close by. Unfortunately, the old hives were left open, so that they became quite deserted. However, the one swarm (call it A) gave me 6 lbs. of honey in a large bee-glass, filled its own box with a famous store (its weight I have not yet ascertained, though I can see the honey-comb), and worked four pieces of comb in a side-box, of which the middle comb was ceiled over six inches down, and the others in proportion. The bees I suffered to carry this into their hive, as the comb will be of more value to me another year, than the honey will now. This swarm was of an enormous size, so much so, that it worked simultaneously in its own box, and in a 14-lb. glass, but one unlucky day in June it blew a perfect hurricane, which destroyed nearly half the swarm—the bees being tempted out by the warmth of the air. The parent stock of this swarm, deserted as it had been, contrived to give me 3½ lbs. of honey in a small glass, besides working several combs in a side-box. Its own weight, on the 15th of September, was 19½ lbs., nett contents—amply sufficient for the mildest winter.

The other swarm (B), artificially made, was put into a large hive, half full of empty comb. Five days afterwards I drove the bees, caught the queen, and returned her to the parent hive, where she was well received. Thus the swarm

(very populous) had to rear a queen, artificially (instead of the old stock), from the eggs or larvæ laid by the queen before her removal. I did this, because the old hive (which was the one I suspended in a hay-loft last winter) appeared in a most miserable condition; the bees that remained (I had suffered them all to join the swarm) were too few in number to attend to the wants of the young brood left by the queen. Many of the larvæ had, in consequence, become quite dead and black in the comb, and the wax moth had commenced its ravages.

What then of this experiment? The swarm (as full of bees as possible) weighed 33 lbs., nett, on the 10th of September; the old stock (which had been quite empty of honey in the spring) 32½ lbs., nett, at the same date. It may fairly be inferred, I think, from all this, that the substitution of the new swarm for the old swarm is a fact well worthy the attention of all practical bee-keepers; and I should be glad to persuade your apianian readers to give my system (which I believe to be a valuable step gained in bee-management) a fair trial. The theory is simple, and the practice easy.—A COUNTRY CURATE.

TO CORRESPONDENTS.

* * We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London."

AGERATUM AND CELESTINA.—A friend writes to us as follows:—There are two plants which, I think, are often confounded by many of your readers—namely *Ageratum* and *Celestina*. I thought myself they were the same plant nine or ten years ago, when visiting the gardens belonging to Sir W. Heathcote, at Hursley Park, Hants. where I first saw a beautiful bed of the *Celestina ageratoides*. I was more than usually pleased with the plant, and remarked to the young gardener who was showing us round the gardens, "What a fine bed of *Ageratum Mexicanum* you have there," when, to my great surprise, he replied, "It is a *Celestina*." I observed it was much larger growing, both in plant and flower, and brighter coloured, yet I could not believe it to be anything more than a variety of the *Ageratum Mexicanum*, of which at the time I had a bed at home; however, I begged a head of seed, but the young man informed me that it rooted readily enough from cuttings, and true enough it does; but this is not the case with the *Ageratum Mexicanum*, which is a tender annual, and though it thrives so well during the summer months, in our flower-gardens, it would be found a troublesome customer to deal with by cuttings, and to keep it alive the winter through. On the other hand, the *Celestina ageratoides* is an under-shrubby greenhouse perennial, and one of the very best of our bedding-out plants, and those who would put by about two plants at bedding-out time, to remain in pot during the summer, but giving it a larger pot to go on through the summer in; pinching off the tops of the plant now-and-then, and towards the beginning of September giving the two plants another shift into a larger pot, will have it growing and flowering during most of the winter and spring months, and yielding plenty of cuttings to strike from, so soon as the bottom-heat hotbeds are at work again. It is such a readily-rooting plant, that every cutting must strike, put into the hotbed. Now this we cannot say of the *Ageratum Mexicanum*. It would be found a delicate plant to deal with, under any circumstances, to keep it through the winter, but it seeds very freely, and stands the test very well when planted out in a bed in the flower-garden, which is not the case with very many of the annual plants. *Ageratum Mexicanum* is an exception to this, standing the test very well as a bed plant. However, where one only is wanted of its colour and shape of flower, give the *Celestina ageratoides* the preference; but where sorts are in request, then give place to all that is pretty and sweet in the *Ageratum Mexicanum*. The whole plant of this is bristly, and the leaves egg-heart-shaped, scolloped, and wrinkly; whilst of *Celestina ageratoides*, the whole plant is, more or less, hairy, the leaves pointed-egg-shaped, rounded at the base, and coarsely saw-edged.

BOYD'S SELF-ADJUSTING SCYTHES (*Hortulanus*).—This is to be bought of Messrs. Deane, Old Swan Lane, London. Mr. Boyd, in a letter now before us, says—"The invention is my own, and was conceived in consequence of the vast annoyance, inconvenience, and expense, in getting one of the old scythes hung; and I was at last almost driven to wish that Old Time had been hung for inventing such a very clumsy thing. I am happy to say, that after much labour and expense, I have succeeded in bringing the improvement to perfection; and that, during its exhibition at the World's Fair, I have been honoured by explaining it in person to Her Majesty and Prince Albert, when it met their most gracious approval. I have received orders for them from M. Salandrouze de Lamorais, on behalf of the French government; as also from the Royal Agricultural College; as well as from farmers, gardeners, labourers, nurserymen, and amateurs, the latter of whom have discovered the important fact, that they can now mow their own lawns without fear of accident, and at such a saving in the gardeners' wages as to enable them to spend their savings in other ways connected with the noble pursuit of gardening."

PRESERVING STRAWBERRIES FROM SLUGS.—E. L. M. writes as follows:—"In reply to an inquiry in a recent number of THE COTTAGE GARDENER by 'Upwards and Onwards,' as to the best means to be adopted for the preservation of Strawberries from the Slug, &c., I would strongly recommend the use of bark from the tan-yard, after it is taken out of the pit. It was used for many years by a gentleman who spared no pains in order to preserve his fruit and bring it 'handsomely to table.' I remember that the bark, or tan, was laid on the beds early in the spring,

* The reader must be informed, and he will bear the information in mind, that the honey season here, as elsewhere, has been very indifferent on the whole.

before the runners began to shoot from the plant, and sufficiently thick to cover all the soil. It answered three purposes: it effectually prevented the devastation of the snail, the ground was kept moist underneath, and avoided the labour of watering, added to which no rain could dash the fruit with soil. Every other means failed but this, and the plan was adopted by many of those who had the same desire that he had to eat that delicious fruit in perfection."

REMOVING BAY-TREE (*Eucalyptus*).—A Bay-tree, eighteen feet high, and as many through, will require great judgment and some strength to remove so far as two miles; but there is no fear of succeeding, even under the circumstances you name, as the Bay removes as safely as the common Laurel, but you ought to employ an experienced person to assist you. *Azaleas* and *Deutzias* will not do at all under the Laurel hedge. Try the *Gloire de Rosamond* Rose, and plant two feet apart. To prepare the red clay bank for flowers, you must mix one-half sand with as much of the hotbed dung as you can spare. We shall soon publish a list of stove and greenhouse plants that will grow gracefully over the pots like the *Torresia*.

PRILARGONIUM ECHINATUM (A. B. C. D.).—If it is well drained, it will be quite sufficient to report it once in four years. You seem to have managed *Primula sikkimensis* quite right; it was worn out, and ought to have been divided three years since. Your cuttings of it are sure to grow and make fine plants, but it is doubtful whether they will flower next year. Altogether you appear to us to be on the right scent with all your plants.

YELLOW CHINA ROSE (T. Fallon).—Are you sure that your rose is the Yellow China? We never heard of it being bad to flower, and we suspect it to be the old *Yellow Briar*, with Provence rose flowers, which no one can flower unless the soil suits it, and no one can say what that soil is. At any rate, take up your rose next month, prune it close, and root-prune it partially, put fresh rich light soil under it, and water it occasionally next summer.

DATURA ARBOREA (W. B. P.).—Your *Datura* not blooming freely, and with diminutive leaves, has been short of food; they are, indeed, gross feeders. The best way to manage the *Brugmansia* or *Datura* family, which are woody, is to let them grow to rest in October; they will cast every leaf. Rest is induced by dryness at the root, and the usual decline of temperature. Our practice is to place them anywhere in-doors, in the dark if you like, where no frost can reach; and in the early part of February to take them out to the potting bench, shake out all the soil from them, trim their roots, repot them a "single shift," and then plunge them in a bottom heat of 70° to 80°. They are, at the same time, pruned in almost to the old wood. In a few weeks they will have made new growth, and may be "cooled down," or "hardened off," and, henceforth, need ordinary greenhouse treatment until near Midsummer, when they may, if you please, be placed out-of-doors in a warm and sheltered situation. The soil should be about equal parts stiff loam and manure, and the more liquid manure the better; at any rate water profusely. *Ganeel's Bergamot Pear* was always a shy setter; your blossoms are badly impregnated, probably the pistil is defective. This sort is too robust to be confined to mere spurs; try the tying down of young shoots, as advised in our previous numbers.

PRUNING FILBERTS (*Rhody-Gloria, Caermarthen*).—This is very simple, provided proper wood exists in the trees; that is to say, wood of sturdy yet moderate growth; and this can only be secured by a steady and uniform action of root. Neither luxuriant filberts, nor those half-starved, will bear well. In pruning, the first point is to thin out much of the little spray in the interior of the tree, for even to the filbert a free admission of light is essential. Next thin out a little even of the exterior, removing the extremes of luxuriance and weakness, and next shorten back what few strong shoots are left (to extend the size of the tree), pruning away about a third of the length. A well-pruned filbert almost approaches the punch-bowl character, the interior not quite so open. Never permit suckers to remain. Do not prune until the nuts blossom in March, and be sure when they bloom to suspend catkins, or male flowers, if the trees be deficient.

DRIVING BEES.—An Incumbent says: "I attempted to drive a hive of bees, an old stock, into an empty hive, about noon on a fine, bright day; inverted old stock, placed on it the empty hive, made all close round the junction, tapped upwards of ten minutes; but, on taking off the top hive, was disappointed at finding that not more than half the bees had ascended, consequently I had recourse to Mr. Payne's old system of cutting out the combs, and brushing off the bees into their hive, and then joined the divided stock, and united them to a younger stock at nightfall. The driving system, if successful, is most desirable, as no bees are destroyed in the operation, whereas in the cutting-out system many are sacrificed. This union has continued to work very comfortably together—not so, however, in my second union. This was between an old stock of some four years old and a fine swarm of this year—a very strong swarm, and from which I had taken a capful of excellent honey, some 11 lbs. The old stock was a strong one, but the swarm I considered the strongest. My reason for uniting the two was because the hive of the old stock was in a dilapidated state. Well, this union was by no means a happy one, for I found on the following morning a heap of bees lying dead on the bottom board—I should say nearly two quarts. The bees were not in either case besprinkled with honey and water: was this the cause of disagreement, or the junction of the old stock with the young swarm?" After having continued tapping the lower hive for ten minutes, and upon examination, finding only half the bees had ascended, the hives should have been again put together, and the tapping resumed for five or ten minutes: half the bees having gone up was a sufficient assurance that the remaining half would have followed had the tapping been continued a little longer. Sprinkling with honey and water is not necessary. When the bees intended to be united to another stock are dashed out upon the ground, or a cloth, and the stock they are to be joined to immediately placed over them, fighting is not known to take place.

Tobacco Plant (*Bertram*).—It is past the proper time to take up your Tobacco plant. Up with it by the roots, hang it in a dry shed until the leaves are half-dried, then strip them off the stalks, and pile them over each other in a heap for three or four days, or until they heat a little;

then open them out, and have them dried slowly; then they are fit for use. Put your *Cyclamen Persicum* under a cover at once, and read the proper treatment in former volumes.

FUCHSIAS (S. S.).—Those you name are as good as those we recommended. There is neither a blue *Verbena* nor a yellow one, but the two you name are the nearest to what you want.

COLD FITS (*Ignotus*).—See what Mr. Fish has said to-day.

CLOTH OF GOLD ROSE (M. D.).—Train it against a south or west wall, and do not shorten the shoots, but train them in at full length, and if it does not bloom, cut one-third of the roots in the spring. The *Devoniensis* and many others will do to bud on this Cloth of Gold. The finest flower we have seen of *Souvenir de Malmaison* Rose is from buds thus worked on the *Solfaterre*, a Rose equally strong with the *Cloth of Gold*.

FLOWER-GARDEN PLANTS must stand over for awhile; but we shall number them as they come, and answer in succession when we can spare the time to begin with them.

WINTERING GERANIUMS ON A LAWN.—F. H. says:—"I have a large basket on my lawn filled with nine Scarlet Geraniums: instead of removing the soil and plants, and refilling it next May, I propose cutting off all the leaves, and sheltering it from frost and damp, and giving no water till the spring, in short, adopting Harry Moore's plan. Will that answer better than filling it with young plants every summer?" Yes; much better, if you are sure of being able to save them from frost and damp. A shelf near the glass in a greenhouse, will not keep Geraniums on Harry Moore's plan; when they are dried they must be kept dark.

BUSTY BODY.—If we were to put in your witty suggestion, we should have another score of expostulatory letters.

BLACK BEETLES AND CRICKETS.—S. Wilkinson suggests red wafers for destroying these, but we do not think them effectual, and certainly not against crickets, for these do not eat them.

FIGS AND PEACHES (*A Subscriber from the beginning*).—It is an injurious plan to pick off their leaves to expose their fruit to the sun. You had better effect the purpose by training in the branches. To remove a single leaf or two does no harm. We should say that on the Kentish Hills, *Taxodium sempervirens* is not likely to rise above 50 feet in height, though in California it reaches to more than 200 feet. The *Cupressus Udeana* will, probably, not exceed 30 feet in stature, though in Mexico it rises to 60 feet, but it grows very fast. This *Cypress*, as well as *C. torulosa* and *thurifera*, are very little more tender than the common *Cypress*.

CYPRESSSES (J. Guest).—Apply to Messrs. Knight and Perry for the information you require. The other subject you name is not forgotten.

HERACLEUM GIGANTEUM.—Any person requiring seed of this may have it by enclosing an envelope, stamped and directed with his or her address, to "W. C. G., Post-office, Sandbach, Cheshire."

PLAN FOR A GARDEN (J. K. Grant).—We cannot accede to your request. To draw out garden plans would occupy one man's entire time—a man whose services would be worth five guineas a day. Employ a gardener to do it, and then we shall be happy to advise upon any doubtful point.

MESPILUS JAPONICA (W. B. D., Elmstone).—This is one of the synonyms of *Eriobotrya Japonica*, the Loquat. It bears a very refreshing fruit. The following extract from *The Cottage Gardener's Dictionary* answers your query:—*E. Japonica* (Japanese). 15. October. Japan. 1797. Half-hardy evergreen fruit-tree, with white flowers. Cuttings of side-shoots, from one to two inches in length, in sand, under a bell-glass, and in a few days placed in bottom-heat, by seeds in a hotbed as soon as gathered; also by grafting on the White Thorn, or, better still, on the Quince. Peat and loam; will grow against a wall with a protection in winter; has been fruited in pots by turning it out to rest in summer, giving a stove heat in winter, when it flowered in December and fruited in April.

POTATO PLANTING (J. Patterson).—See what we say to-day in our leader. If your soil is at all heavy, mix a little coal-sheas with the surface, dig your ground enough for a row at a time, put the sets on the surface, and then earth over them nine inches high, thus

ASPARAGUS BEDS (*An Amateur and a Novice*).—Draw off about an inch of the surface-soil, as soon as the stems are quite dead and cut down, put on a good dressing of the thoroughly-decayed dung and seaweed, and then return the inch of surface-soil. In the spring, gently stir up the mixture with a fork.

FLOWERS FOR THE GRAVES (C.).—Your essay thus entitled shall appear in our next. Never were we more misunderstood than on this subject. We love to see the well-trimmed graves, and to flower-decked graves have we no objection; but let the flowers be such as those who rest beneath loved when in life, or such as the sorrower-left-behind's own heart suggests.

HARDY FLOWERS (Cambridge).—We do not think either *Dahlias* or *Geraniums* come within this class. They are only half-hardy, requiring protection in winter, therefore, should have disqualified a basket of cut-flowers exhibited to compete for a prize offered for hardy cut-flowers. We do not think nineteen-pence per square foot too much for garden-lights, glazed with Hartley's rough plate-glass, painted, handled, and all completed of good materials, and well made.

PITCHER PLANTS (*A Subscriber*).—More than one genus is included under this general name. Messrs. Veitch exhibited *Cephalotus*, *Nepenthes*, and *Sarracenia*, in a collection of Pitcher Plants. In all, "the pitcher" is the form of some of the leaves, as in *Cephalotus* and *Sarracenia*, or an appendage at the end of the leaf, as in *Nepenthes*.

ERRORS.—At page 378 of last volume, col. 1, line 7 from top, for "Mount Java," read "Mount Jura;" and in line 10, for "Brevere" read "Brevet." "Whitburn" is thanked for these corrections.

WHOLESALE HOUSE (*A Subscriber, Mickleton*).—Any of the London houses who advertise in our columns will supply seeds as required. We cannot particularise one.

LAYING DOWN AN ORCHARD WITH GRASS (W.).—Tell us the nature

of your soil, and then we will advise you. Grasses that flourish in light soils will not do for heavy soils. Remind us, when you write, what you require the grass for.

FUCHSIAS (S. J. *Whitchurch*).—Enquire of Messrs. Henderson, Pine-apple Place, London. Send flowers for judgment to THE COTTAGE GARDENER Office, 2, Amen Corner, London.

ANGOLA RABBITS (*Noke*).—Send your direction to Mr. H. Webb, 27, Piccadilly, London.

ZELINDA DAHLIA.—B. W. K. and other correspondents wish to know of any florist that can supply them with this dark dwarf variety.

DRAWING INSTRUMENTS (*A Cottage Gardener*).—What do you require? Do you mean mathematical instruments? Or do you mean a painting-box? Go to the largest bookseller's in your nearest town, and describe what you require. The Drawing-books in Chambers's Educational Course will probably suit your little boy.

TECOMA JASMINOIDES.—S. Y. writes to us as follows: "D. B. remarks, at p. 367, Vol. vi., that he has striven in vain to make the beautiful *Bignonia* or *Tecoma jasminoides* to flower very freely in-doors. I have had it for several years against the back of my greenhouse, and have had no difficulty in blooming it; for five months past it has been in masses of bloom, and is so at present, covering a space of about four feet wide by ten feet high. I hardly prune it at all, but twist its long shoots as they grow, upwards, downwards, and sideways, in all directions. It is planted in a wooden box about eighteen inches long, twelve deep, and eight wide, from which it has not been removed for about five years. It is one mass of roots, and merely gets a top dressing of good mould and rotten manure once a year of about one inch in thickness. Another contributor remarks (p. 399), that he has been disappointed this year with a bed of *Salvia patens* unaccountably dying off. I have always a large bed of it in flower for some months, perfectly healthy, and admired by all; it has grown so well with me I intend to grow it much more largely next year."

WHEELBARROW (*J. N.*).—We did not notice at the Great Exhibition the wheelbarrow with the wheel under the head, which you mention. We wish its inventor would send us a drawing and description, because we think with you it must make the labour less.

GARDENER (*A Lover of Early Rising*).—We regret that we cannot aid you, as you say your head gardener "must understand the Welsh language" to enable him to talk to assistants.

ASPARAGUS BEDS (*Mertsham*).—The best time for making them is the end of March or early in April. Trench the ground three feet deep, and mix abundance of dung, either from the stable or piggery, throughout the whole depth. Plant when you make the bed. Sprinkle a little salt over the bed once a month.

NAMES OF PLANTS (*R—S*).—Yours is *Viburnum opulus*, or Guelder Rose. (*S. Wilkinson*).—1. We think is *Cerastium silvica*. It is certainly not the Coffee Tree. 2. A variety of *Olea europaea*, or Olive. It does not fruit readily in this country. 3. *Diosma ericoides*. (*Inquisitive*).—1. *Rudbeckia purpurea*. 2. *Campanula azurea* (?) 3. *Arctotis aureola*. 4. *Rudbeckia fulgida*. 5. *Salvia pseudo-coccinea*. 6. *Salvia Grahamii*, var. 7. *Calceolaria integrifolia*? 8. *Pentstemon campanuloides*. 9. *Pentstemon glaberrimus*. 10. *Lobelia pinnatifolia*? 11. *Isotoma linearis*? 12. *Campanula glomerata alba*. (*H. W. M.*).—1. *Enothera macrocarpa*. 2. Not certain at present. 3. We think is the Fern-leaved Gale. 4. *Pelargonium odoratissimum*. Sweet-scented Pelargonium. 5. Sweet Alyssum, or *Alyssum maritimum variegatum*. 6. A very beautiful species of *Erigeron*. We should like a small rooted piece. The pear is an *Easter Beurre*. (*J. O.*).—Yours is *Oxalis rocea*. (*D. A. B.*).—Yours *Francoa ramosa*.

BRITISH MADEIRA WINE.—A correspondent sends this as excellent, where much is required for the poor sick.—"Boil 30 lbs. of good Lisbon sugar in ten gallons of water, for half-an-hour, and skim it quite clear; when about lukewarm, put to every gallon one quart of ale, while working. Let it work in the tub for a day or two, then put it into the barrel with one pound of sugar-candy, 6 lbs. of raisins, and 2 ozs. of isinglass. When the fermentation ceases, add one quart of the best brandy, and stop it up. It should remain from six to twelve months in the cask. The cost does not exceed 4d. per bottle.

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WEEKLY CALENDAR.

M D	W D	OCTOBER 23—29, 1851.	WEATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
23	Th	Wood Pigeons come.	29.308—29.166	48—38	N.	46	39 a. 6	50 a. 4	4 34	28	15 31	296
24	F	Golden Plover comes.	29.311—29.317	41—35	E.	21	41	48	sets.	1	15 39	297
25	S	Snipe comes. [thorn leaves fall.	29.506—29.410	46—30	N.E.	—	43	46	5 a. 41	1	15 46	298
26	SUN	19 SUNDAY AFTER TRINITY. White-	29.801—29.624	46—23	N.E.	—	44	44	6 11	2	15 52	299
27	M	Tortoise buries.	29.906—29.745	49—37	W.	26	46	42	6 48	3	15 58	300
28	Tu	St. SIMON AND ST. JUDE.	29.419—29.313	52—29	W.	02	48	40	7 30	4	16 3	301
29	W	Wild Duck comes.	29.638—29.475	49—24	N.	—	50	38	8 21	5	16 7	302

One of the most appropriate records of the dead to be found where such records usually are preserved, is a mural monument in the church of Edgbaston, the entablature of which is of black marble, enriched at its base with the emblems of the Æsculapian art, from which extend on the right a representation of the *Digitalis purpurea* (Purple Foxglove,) chiseled from living specimens, and on the left the *Witheringia solanacea*. The whole is surmounted by a Grecian vase, entwined with a chaplet of natural flowers. These decorations, executed in pure statuary, embrace a tablet bearing the following inscription:—

Sacred to the Memory
of
WILLIAM WITHERING, M.D., F.R.S.
&c. &c. &c.
who was born March 23, 1741,
and died October 6, 1799,
aged 58 years.

The *Foxglove* commemorates the important services he afforded to medicine, by advocating its employment as a remedy; the *Witheringia* is the genus of plants dedicated to him by L'Hertier; and the chaplet of natural flowers is that which might have been deservedly bestowed on one who had collected, at that time, the most perfect work concerning our native plants, and was the first to arrange our British Flora according to the Linnæan system.

We have adopted Dr. Withering for our this day's biographical memoir, because it will serve as an appropriate introduction to our portraits and descriptions of British plants, which we shall very shortly begin to present to our readers, and we have the greater pleasure in adopting this memoir, because he is one of the many who, deep read in science, form so brilliant a portion of that "cloud of witnesses," who all died in the faith. When the finger of time was upon the hour of his death, if one lingering look was cast behind, says his son, it arose from an anxiety to be assured that those nearest and dearest to him were equally impressed with that lively faith, the efficacy of which he now doubly felt. On his son and daughter, by his own desire, again drawing near to him, as if to reconcile them to the approaching separation, with a calm and beaming countenance, "My children," he said, "see how easy I lie!" He had never indulged in that carelessness of personal appearance sometimes observable in the studious. Indeed, he attached so much regard to neatness, as to consider it, in a degree, at least, to the body what virtue is to the soul: nor did propriety of this kind escape his attention even at the point of death. Refreshed by an entire renewal of linen, and, perhaps, with a sense of decorum gratified, immediately afterwards, being raised at his own request, he fervently ejaculated, "Now I am ready!" at the same moment springing forward with an energy that might be deemed almost preternatural, he exhausted the feeble remains of vitality. Such was the expiring effort—such the last movement of this excellent man, and it seems grivelling among earthly things, after such a departure to eternity, to refer even to his intellectual pursuits, mingled, as they must be, with a few other points of his personal history.

Dr. Withering was born at Wellington, in Shropshire, where his father practiced as a surgeon, and he had the inestimable benefit not only of an admirable mother, but the privilege of sustaining and watching over her

in her declining years. In his Diary is this entry—"July 3, 1789, my mother died, after an indisposition of five days, in the eighty-first year of her age. Her native good sense, improved by education, made her company for the wise, and the placid cheerfulness of her declining years rendered her acceptable to the young to the latest period of her life. Both she and my father were unerring examples of the strictest integrity."

Designed from youth to practice in the higher department of his profession, he, after the usual pupillage, took his Doctor's Degree at Edinburgh, and commenced practice at Stafford. Patients did not abound, but among them was one who had as his wife a more than even the usual influence over his future welfare. So far was he in early life from possessing a botanical taste, that he wrote thus to his parents from College:—"The Botanical Professor gives annually a gold medal to such of his pupils as are most industrious in that branch of science. An incitement of this kind is often productive of the greatest emulation in young minds, though, I confess, it will hardly have charm enough to banish the disagreeable ideas I have formed of the study of botany." However, love made Matsys resign the anvil for the easel, and love made Dr. Withering a master in botanical science.

At Stafford, says his son, one of Dr. Withering's earliest patients was Miss Cooke, the lady destined to be his future bride. After having re-established her health, and been admitted to habits of intimacy with her family, he was permitted in some degree to direct the completion of her education. "The harpsicord, the voice, the pencil, and every exterior accomplishment," he observes, "were already at her command, his study was to extend her taste for literature." Such intercourse ripened mutual esteem into affection, and in the course of a few years his attentions were rewarded with the hand of his pupil.

It is more than probable that his first voluntary researches in the British Flora were induced by the desire of supplying subjects for the highly-finished drawings of this lady. For her he explored the enamelled meadows watered by the Trent, the varied lawns of Shuthborough, or the wild recesses of Haywood Park; and, being less engaged in severer studies, he became more and more enamoured of the novel pursuit, and soon began to collect specimens for that *herbarium* which he afterwards rendered so complete.

We have no space to record his varied pursuits in Natural Philosophy, nor to linger over the painfully interesting details of his travels and struggles to escape from that disease of the lungs which finally put a period to his life. Patient, resigned, and thanking God that his spirits failed not, he devoted the chief of his time to our native botany; and he lived to complete and publish, in 1796, the third edition of his *Botanical Arrangement of British Plants, including the Uses of each species in Medicine, Rural Economy, and the Arts*. It is upon this we shall found the descriptions and biographies of British Plants we propose placing before our readers, adding only such other information as our own resources, and the researches of later botanists afford.

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 55.5° and 39.8° respectively. The greatest heat, 67°, occurred on the 29th in 1833, and the lowest cold, 23°, on the 20th, in 1842. During the period, 84 days were fine, and on 84, rain fell.

THE more we see of Mr. Hogg's *British Pomology*, the more we are confirmed in our already-expressed opinion, that it is the best work upon the subject that has hitherto issued from the press; but we allude to it now especially for the purpose of giving an extract from a letter we have received from the author, correcting some minor errors into which we had fallen. He says—

"You seem to have overlooked the classification of the apples, which is in the first part, immediately after the historical portion. It is not such a classification as I should like to have introduced, but it is sufficient for all ordinary purposes. I am engaged on a system which will reduce apples to a more natural arrangement, but as I have not been able to bring the numerous varieties into their proper positions, as yet, I shall defer its publication till a future time. It is my intention to cancel sheet B of the first part, and introduce the systems of Deil and Dochnahl, for the benefit of those who may be groping after some mode of arrangement. If we could but discover some sound system of classification, we need not fear but pomology would soon become a science.

"I must correct a false impression under which you are labouring. I am not now the proprietor of the Brompton Park Nursery; it is nearly three years since I retired from that concern, which is now conducted by one of my late partners. But all my early associations are as fresh as ever, and my whole delight is in my favourite—pomology. I have my collection of fruits at Worth, in Sussex, where I some years ago established a private orchard for observations."

Of this collection we have now a catalogue before us, and it contains a larger number of varieties of all our hardy fruits, from Almonds down to Strawberries, than any other private orchard in the United Kingdom; nor is this all, for Mr. Hogg says—

"It is my intention still to add to this collection as new or hitherto neglected varieties present themselves; and for this end I shall be happy to open correspondence with any one who would be disposed to exchange grafts with me. Should there be those who are desirous of improving or enlarging their collections, but who have no facilities for making exchanges, I shall be happy, at a small cost, to supply them with grafts of any of the varieties herein enumerated.

All applications for grafts must be received by the 20th of December in each year, otherwise they cannot be attended to. Communications to be addressed to Robert Hogg, No. 13, Gilston-road, Brompton, London."

THE following letter is from a correspondent, but, as it is anonymous, we should not have inserted it thus prominently if we had not had the opportunity of trying the scythe he mentions, and found it fully meriting all the praise bestowed upon it:—

"I purchased, in June last, one of *Boyd's Self-adjusting Scythes*, which deserves all praise. I find I can now cut my own lawn, and for this, and its various novelties and utilities, recommend it very strongly to the notice of your subscribers. Its price, 10s. 6d., is so moderate as to bring it within the reach of all. My old scythe used to hang over my pear tree to be out of harm's way; and having encountered all the rough winter weather, in the following spring, on requiring to use it, I found it half-decayed, and as *rickety* as though it had been in wear for a century. But with *Boyd's* scythe I do no such thing, neither do I fear my children or domestics getting injured by it, as when I have done using it I shut it up, and stow it away under my kitchen stairs, where it is kept free from exposure to weather, and likely to last out three of the old-fashioned ones."—C. T. W.

There is an improvement yet needed in the scythe, and that is, that the iron hook which, to hold the blade firm, passes through a hole in its heel, should be fastened to the handle, and regulated by a screw, instead of being nailed as at present.

GARDENING GOSSIP.

Mr. Weeks exhibited a flower of the *Victoria regia* at the Horticultural Society's last meeting, one flower of upwards of fifty that had been produced in his heated pond in the open air. A good deal has been said of Mr. Weeks having protected the plant in the night the first few months it was planted out, and some writers have attempted to show that there was something like deception. We confess we never saw anything like deception, and we consider any such inference quite unjustified. We protect tender plants under glass to be bedded out when they can stand the warmer climate. Mr. Weeks has done immense service by showing that the *Victoria regia*, by protection during the severer weather, will afterwards flourish in the open air. He was awarded a silver medal, and deservedly.

The *Odontoglossum grande* is one of the most showy and hardy of the orchideous tribe, and it has been said will bloom in the open air in summer time. Mr. Jackson, of Kingston, flowers them in a cool house. We have read a great deal about "orchids for the million;" "the million orchids" would have been a better title. To have carried out the notion of "orchids for the million," would have been to describe only those which require no stove, and not much trouble. We should just as soon expect "piano-fortes for the million" as orchids. If they are not the most difficult family to manage, they, at least, require what not one person in a million can provide. Whoever shows the world a list of those which require but little trouble, and less money, will be doing a real service. Mr. Jackson, of Kingston,

has done his part with the magnificent subject we have noticed.

Messrs. Lucombe, Pince, & Co. have produced a beautiful variety of *Æschynanthus*. The tube is a bright yellow inclining to orange, and the lip broad and bright red. The flowers are of the full size, if not larger than any we have.

Mr. Fleming, who used to distinguish himself as one of the most successful exhibitors at the exhibitions held through one of our hardest winters—Murphy's winter—at the Egyptian Hall, and who owes his present engagement to the meeting of her grace the Duchess of Sutherland there, has just given a proof of his skill at the Horticultural Society; he showed at the last meeting a *Queen pine* 7½ lb weight, besides three others of the respective weights of 6 lb 14 oz., 5 lb 15 oz., and 5 lb 10 oz. Mr. Fleming's father was in the same noble service years before, but the son had lost sight of the family in other service at the time we mention, and the meeting was as fortunate for the employer as the employed.

Great efforts will be made, we understand, to apply *class showing to Dahlias* next season, by which the flowers must stand or fall by their merits, irrespective of size and of each other. The question to be discussed is, shall there be more than one of a sort win? The northern florists adopt class showing, to place varieties where they range in point of excellence, and, therefore, do not allow the same flower to come in twice, if there be enough varieties to take all the prizes. The Cambridge people allow the best flowers to win all through, so that one variety may win all through a class.

The *National Floricultural Society* on the 9th inst. had very few things shewn, and fewer people to look at them.

Mr. Drummond's *Dahlia*, *Bob*, was exhibited in not very good order, but had a certificate, and in the deficiency of novelties deserved it. *Sir R. Whittington*, another of beautiful pinky-purple, was in better condition than we had seen it before, and will prove an acquisition; but it had no certificate. *Queen of Whites* shewn tolerably, but too open. *Kossuth*, a tolerable red-and-white fancy, was not noticed. *Tom*, a scarlet with pale sunk eye, not noticed. *Alice*, a dead rose colour, very striking on that account, but shaly in the centre, was also passed unheeded; it is under medium size, but pretty. A new *Statice* from Mr. Drummond, more robust and of far better habit than *Arborea*, with a flower double the size, was awarded a first-class certificate. *Miss Mathews*, a fancy dahlia of Bragg's, was shewn in worse condition than we have seen it; this is a red-and-white fancy flower, of which there are already so many, but upon most of which it is an improvement. The character of the new dahlias generally is not first-rate. Most of them are too open, the petals do not cover each other enough, and the centres are inclined to be sunk, while the faces are flat. At present we see nothing to beat *Scarlet King*, *Whittington*, *Bob*, *Triumphant*, *Sir F. Thessiger*, and *Dr. Frampton*. The last and the first-named, perhaps, are the best; but the last is very desirable indeed, now that there is some chance of an improved taste as to size. It will not do next season to depend on measure. E. Y.

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.

OLEANDER-LEAVED ANDROMEDA (*Leucothöe (Andromeda) Nerifolia*).—*Botanical Magazine*, t. 4598.—In mytho-

logy, *Leucothoe* was a beautiful woman, who, according to Ovid, was metamorphosed into a tree, bearing frank-



incense, on account of her falling in love with Apollo. In gardening, *Leucothoe* is one of five generic names proposed by the late David Don, in the Edinburgh New Philosophical Journal, xvii. 159, for a section of *Andromeda*, that section to which *Andromeda floribunda* and *acuminata* belong. Other botanists have added nine more names, so that at the present day *Andromeda* is loaded with no less than fourteen synonyms, of which the subject of our present biography is one. Poor *Andromeda*! a king's daughter once tied to a rock, and exposed to a sea monster, to appease the rage of a green-eyed demon, and in these latter days sacrificed and torn to pieces to satisfy the cravings of an illegitimate love of distinctions without differences. Our pen shall never aid in dismembering a hair's breath from the genus of our lovely *Andromeda*! In a consecutive arrangement of the species *Andromeda neriifolia* must be placed near *Andromeda floribunda*, now a well-known evergreen species, from the mountains of Georgia, and once supposed to be very difficult to propagate. In the natural classification *Andromeda* belongs to the *Heathworts* (*Ericaceæ*), and in the Linnæan system to the first order of the tenth class, *Decandria Monogynia*.

Leucothoe neriifolia was sent to Kew Gardens, without any particulars, by Mr. Cunningham, of Comeley Bank Nursery. It is an evergreen shrub; leaves pointed, long-heart-shaped, leathery, and smooth on both sides; flowers, in single bunches, from the angle of the leaf-stalks; stalks and calyx of the flowers red, corolla scarlet, pitcher-shaped, and fleshy.

B. J.

It requires to be grown, like the Chinese *Azaleas*, in rough turfy peat, with one-third sand, and a good open drainage. Like them, also, as soon as the flowering is over in the spring, the plants should be gently forced, to make a vigorous fresh growth; after that an airy greenhouse treatment answers better than keeping it in the stove. Cuttings

of the half-ripened shoots in bottom heat, under a bell-glass, is the readiest mode of propagation. It may probably be grafted on young plants of *Andromeda acuminata*, or *floribunda*, and no doubt, like the rest of this section of the genus, it will seed if it is carefully dusted with its own pollen. If it will cross by the pollen of *floribunda*, we may expect a new race of half-hardy evergreen *Andromedas* of great interest. Hitherto the genus has so abounded in white flowering species, that no one thought it worth while to try to improve it by cross-breeding; but our knowledge of the readiness with which other species of *Heathworts* will cross, although of very dissimilar aspects and constitutions, as *Rhododendrons* and *Azaleas*, &c., ought to stimulate gardeners to experiment in this genus also, now that they will have access to the bright scarlet flowers of *Andromeda neriifolia*. We have years and years ago repudiated the idea of splitting up the genera of *Heathworts*, as *Decandolle*, *Don*, and others have done, and asserted that "a skilful hybridizer might easily make fearful disclosures" in such arrangements; but such artificial distinctions need not deter the young cross-breeder in a field of great promise.

D. BEATON.



VARIEGATED ONCID (*Oncidium variegatum*).—*Paxton's Flower Garden*, i. 165).—Professor Swartz, the founder of this genus, tells us that he named it from *onkidion*, a pimple, because of two prominences on the labellum or lip. The species before us was first described in Swartz's *Prodromus*, but under the name of *Epidendrum variegatum*, and its specific name alludes to its *variegated flowers*. Willdenow, in his *Species Plantarum*, first added it to the *Oncids*.

It was first introduced into England by Sir C. Lemon, Bart., from the Havannah. It is a dwarf species, with pale pink flowers. Its culture does not differ from that so fully and masterly given by Mr. Appleby for the other species.

Dr. Lindley justly observes that every one must have felt a difficulty in determining the name of any species in this genus, and as a guide he has proposed an arrangement which will be found in *Paxton's Flower-Garden*, i. 22.

B. J.

THE FRUIT-GARDEN.

PRUNING.—We purpose, during the next three or four weeks, to handle this subject in most of its bearings, both because it is a seasonable affair, and because a good deal of misconception exists as to its true use and tendencies. We will first remark on general principles, and afterwards handle the fruits in detail; pointing to its extent and influence on each separately, for the sake of those who are young in horticulture. Of course, *branch-pruning* is meant, and that, too, as performed during the rest season; which, in the gardening acceptation, extends from the fall of the leaf until the very first symptoms of the incipient buds bursting their bonds. Let it be understood, then, that it is always necessary to distinguish well between winter, or *rest-pruning*; summer-pruning, or *stopping*; and *root-pruning*. We would fain convene a few set titles for these procedures; they might be as follows: *Rest-pruning*, *Growth-pruning*, and *Root-pruning*. The second term including all stoppings, pinchings, &c., commonly called "finger-and-thumb-work." There is nothing like established terms to express our proceedings; it saves misconception in the minds of the readers, and tedious repetition on the part of the writer.

And now to commence, let us see what "rest-pruning" can do.

1. It can cause the admission of more light.
2. Relieve oppressed trees.
3. Assist in completing the necessary form.
4. Promote symmetry.
5. Furnish blanks.
6. Induce spurs.
7. Remove obstacles.

Now this is a goodly list of merits, certainly. We must beg permission to give "the why and the wherefore."

1st. **ADMISSION OF LIGHT.**—That the removal of a portion of the shoots, or branches of a tree, will enable the remaining portion to receive a greater degree of light, is a self-evident fact. Trees in a state of nature grow up to maturity, bear abundantly, and re-produce their kind, unassisted by man. Nature's grand object, however, seems to be simply the production of seed; the character of the pulp is a secondary consideration. For the former man cares little; it is the coating which surrounds the seed, or kernel, which constitutes the chief value of most of the fruits he cultivates; and it is well-known that the progressive amelioration of that flesh is highly dependant on cultural operations, amongst which may be counted judicious pruning. By raising seedlings, then, through successive generations, and by high culture, we have the valuable *Ribstone pippin* from the worthless crab; the delicious *Greengage* from the sloe, &c.; at least, good judges of such things generally consider it to have been the case. Now in pruning, it is not merely the admission of light that is effected, although that is the most important with regard to quality and fruitful habits, the relief of trees oppressed with overbearing is another important consideration; this, however, belongs to *point the second*. A free and equal admission of light tends to produce an equality in the branches, and, by consequence, equality in the character and size of the fruit; for in trees totally unpruned, we may often see a few fine fruit just at the extremity of the branch, whilst the remainder, especially the interior, is crowded with produce, deficient both in size and quality. The free and equal admission of light, also tends to produce solidification of the wood, and thereby to promote healthiness of habit; one step, assuredly, to size and quality of fruit.

2ndly. **RELIEVING OPPRESSED TREES.**—If, through overbearing, general debility, age, canker, or temporary loss of power, through removal, or any adventitious circumstances, trees evince weakness, pruning, judiciously performed, is a certain relief, temporary, at least; and

very frequently a permanent one. This having been adverted to before, under point the first, we proceed to consider how pruning

3rdly. **ASSISTS IN COMPLETING THE NECESSARY FORM.**—That timely pruning will assist in carrying out the trainer's view is well-known to everybody; indeed, it is scarcely possible to carry out a neat espalier system without it. Not that we would direct his chief attention to this as the main accessory to that end. No; summer-stopping is by far more important; but of this more in its proper place. Merely referring to the principle, we will pass on, promising, in due time, to show its application in common with the other points to each of our fruits.

4thly. **PRUNING PROMOTES SYMMETRY.**—This is merely referred to in order to point to this very necessary qualification in fruit trees, especially in small gardens of the ornamental character, villas, the *ferme ornée*, &c. It may, at once, be merged into point the third, after the above consideration.

5thly. **FURNISHES BLANKS.**—This, indeed, with regard to young trees especially, is one of the most important ends of *rest-pruning*. The chief misfortune is, that in attempting to carry out neat systems of training, much sacrifice of wood, which would otherwise prove of fruitful character, is but too apt to be made. This, indeed, is almost inseparable from a systematic course in the earlier stages of the tree; still a judicious course of "summer-stopping," and timely training, will save many a twig, which otherwise falls before the ruthless hand of the "rest" pruner. Whatever be the course pursued in regard of summer management, rest-pruning should be resorted to with trees of all ages, when and where deficiencies exist. The pruner, in this case, may merely remember that a tendency exists in most free-growing shoots (on young trees especially) to lengthen, and that it very frequently serves the cultivator's purpose much better to cause one strong shoot to branch into four or five subordinate ones; this the rest-pruner's knife can accomplish under ordinary circumstances.

6thly. **INDUCES SPURS.**—One of the most important offices of *rest-pruning*, and in carrying out a dwarfing system, needs to be practised annually on many of the long shoots of young and free-growing trees, until the side buds are made to develop in some degree. It is not, however, equally applicable to all trees, as we shall show in detail shortly.

7thly. **REMOVES OBSTACLES.**—The trees of the kitchen-garden, especially the rough espaliers or dwarf standards, are apt in time to exceed the bounds originally assigned them, to overgrow the vegetables or flowers, or overspread the walks. Here rest-pruning must be used, and it should be done in good time, or large amputations become necessary; this is a proceeding to be avoided at all times, as fraught with danger to the stability of the trees.

Having thus pointed in the abstract to the use of *rest-pruning*, we will in future papers show its application to our respective fruits.

R. ERRINGTON.

THE FLOWER-GARDEN.

If I was beginning a new garden on my own account, or entering on the culture of *Dahlias* for the first time—that is, for the flower-garden, and apart from all idea of competing for prizes—this is about the time that I would get in, or buy, the foundation for a good display. I would have a good, sound root of all the sorts I wanted, and I would take particular care that the great fangs, or tubers, were free from cracks or bruises, always a sign that they had been carelessly got up, instead of being

handled about like so many eggs, as they ought to be. There is no harm in cutting off a few of the larger fangs as soon as the dahlias are taken up, if done carefully, and the wounds get dried over before the roots are stored; but if the necks of these large, heavy tubers get twisted, or otherwise too much strained, at the time of lifting, that will be sure to induce decay sooner or later. There is another great error which a young beginner is apt to fall into with his *Dahlias* at this season, which is this:—A good piece of the bottom of the stem is left to carry the roots by, and often to hang them up by when they are partially dried; but by-and-by this bottom piece begins to damp, or otherwise decay, because there is no great substance in it to hold out like the tubers, and the decay reaches the collar, where all the eyes or buds for growing next spring are clustered around. If this is allowed to go on, and the buds are injured, no matter how sound the tubers may be next season, they cannot form new buds, and they might just as well have gone first as last. Experienced growers act differently; they, too, leave a piece of stem to the roots at first, and until the whole are well dried; then, before they put them by for the winter, they cut away, very carefully, every part that is likely to decay, leaving only a mere stump above the neck or collar; and not only that, but they never put away a valuable root until they see that no speck or blemish is left on this stump to endanger the safety of the bud. All around the collar must be as sound and dry as a nut ere they consider it safe to store them. There is another way of dealing with very small and scarce roots that have very little substance in them, by which they can keep them safe enough, which is, potting them in sand, or sandy earth, and keeping them like pot geraniums of the scarlet breed, that is, not wet or dry, and the pot is a great convenience besides, for you can move it from place to place at any time to insure the proper keeping of the roots. I had half-a-dozen roots of the *Scarlet Zelinda* sent me two or three weeks since, and this is the way they were served; not that they were at all weak, but, having been taken up when they were in full growth, that is the safest way, to ripen them slowly in an open shed as long as the frost holds off, then a dry shelf somewhere will be found for wintering them. I never saw this dwarf scarlet dahlia in growth, and some visitors told me, early in the season, that it was confined to one garden, one which nobody could see until the death of the owner a few months since; but since, I learned from Mr. Forbes, gardener to the Duke of Bedford, and from Mr. Spencer, gardener to the Marquis of Landsdown, that they had it, and that it was quite as dwarf as the original dark *Zelinda* which they saw here, so that I am quite sure that it is a good flower-garden plant. They sent me flowers of it, along with the roots, and if Mr. Glenny had seen them he would not have slept for a night or two, as their image would press on his nerves like the nightmare. But I can vouch for it, that nine-tenths of the ladies, and the higher classes in general, care not one fig whether a dahlia is round or flat-faced, or whether the petals are round-cupped or star-pointed, so that the flower is of a striking colour and a profuse bloomer. This *Scarlet Zelinda* has the petals as sharp and starry as any flower can be; the nearest to it of all the dahlias I have seen is one called *The Garland*, which Mr. Jeffries, nurseryman, at Ipswich, grows every year. This also is a famous flower-garden plant; the flowers are small, very numerous, and quite scarlet, but the plant is from three to four feet high, and only fit for the centre of a large, round bed. I saw a fine, new, bedding geranium with Mr. Jeffries, the other day, and I told him to increase every morsel of it. I shall describe it when I come to the descriptive list of all the best bedding geraniums, which I promised some time since. Meantime, I have

another dahlia to describe, a beautiful thing for the flower-garden, as single as a *Zinnia*, and not unlike one of the best purple *Zinnias*, with stripes of a lighter shade, very round petals, as thick as if they were made out of gutta percha or India-rubber, and not bigger than those of the wild dahlia called *Scabigera*—the name is *The Glory of Thetford*. The gentleman by whose kindness I got acquainted with this dahlia, is R. Bevan, Esq., Rookery, Rougham, near Bury St. Edmunds, a great and enthusiastic collector of fine and rare things, who would give any plant from his unique collection for a root of the wild original *Dahlia coccinea*, which he failed to reintroduce from Mexico; and he believes it is lost to cultivation altogether. But let us hope not; and that some one amongst our thousands of readers may give a clue to its whereabouts. To send for it direct from Mexico would be a better speculation than to be in possession of a whole bundle of Mexican bonds. I wrote back immediately for the biography of the *Glory of Thetford*, and hinted that it should be increased in the way of trade, thinking that it was in the hands of some nurseryman round about. The following is the answer I received from Mr. Bevan:—"The single dahlia, the *Glory of Thetford*, I got from the late Mr. Sparrow, of that town, who was gardener to that distinguished cultivator, the Rev. Reading Leathes, of Shropham, and brought it with him thence; it was probably raised there. Roots or seeds of it are at the service of any person who will apply to me, or I would commit the distribution to any agent whom you would recommend. I am glad to exchange, but I cannot sell or bargain."

We must get this single dahlia into general cultivation, and we must not be so rude as to trouble the gentleman about it, who is little aware of the enormous trouble his kindness would entail upon him. Five hundred letters the first week would be enough to frighten any one, but that is nothing to the number of applications he would be sure to encounter. Let no one, therefore, apply for it direct unless he can give a root of *D. coccinea* in exchange. But let Mr. Appleby's employers, or some other spirited firm, take the surplus stock in exchange for some other plants, increase it in the spring, and let it out cheap, that all may have a slice of it.

I have been regretting for years, and many have shared my disappointment, at not having a beautiful race of single dwarf dahlias for the flower-beds. I would submit to the last turn of the screw at the hands of the regular florists, for a lot of really good single dahlias, piccotees, carnation stripes, selfs, and all as round as a full moon, if so they must be. Now the *Glory of Thetford* is, perhaps, the best single dahlia ever got under cultivation, and, therefore, the foundation is already laid for a fair start. I have myself tried hard for several years to do the thing out of *Scabigera*, but although I got every shade, from dark purple to pure white, in the seedlings, and also experimented on seeds from the ray and from the disk parts of the flower, I am just as badly off as when I first began; not a single good flower did I get, and I prefer the original lilac of the species, if, indeed, it is a species, to any of the hundreds of seedlings. Yet, in the progress of improving a race of singles, I think *Scabigera* would be useful to keep down the coarseness of the leaves; no dahlia has such beautiful leaves as *Scabigera*.

If we do not make a push just now with flower-garden dahlias, the hollyhock makers will put down the whole of them in a few years. *Hollyhocks* are fast getting into splendid order—but there is one thing about them that will never come up with the dahlia—amateurs cannot show them for prizes and have them to look well at home, for the moment you cut a spike from a hollyhock its beauty is gone with it for that season—and this is the right season to buy in a lot of fine new ones, and to

divide the old roots of the best at home. If this work is put off till the spring, the flowers will not be one-half so fine next year. To show them off to the best advantage they ought to have a good back-ground of evergreens, and be grown in strong, deep, rich ground. They should never lose their bottom leaves till the flowers are over, for if they do, though the flowers be ever so gay, the plants will be little better than ghosts. It is a general custom now to sow hollyhock seeds of the very best sorts as they are ripe, get up seedlings before winter, plant them out in the spring in close rows, and they will flower the same season, and nearly as soon as the old plants. This is a great saving of time and room; the bad ones are pulled up as soon as they open the first few flowers, and the really good ones are cut down to make cuttings, early in the autumn; and by the time the old way would "give the proof," this new way will have them in the market by the score. The next call in hollyhocks will be to get *dwarf sorts*, not more than a yard, or four feet at the most, and until such dwarfs do appear, the next best step is to manage some of the tall ones so as to dwarf them, and this can be done to a considerable extent by breaking off the strong flowering shoot when it is about a foot high, early in summer, then a host of secondary ones come from the stump, and if they are too close together some must be removed.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

HOUSING PLANTS, PREPARATIONS FOR, &c.—Notwithstanding the cheapness of glass, want of house-room is the prevailing cry go where you will. Plants in balconies and flower-beds, beautiful even *now*, in this fine weather, conjure up feelings of regret, mingled with the pleasure they convey, from the conviction that the frost will soon seize them as his prize, and that, with respect to many of them, we must look on with folded arms, without the power or the means of saving them. A happier destiny awaits the regular occupants of the greenhouse and window, though here, also, the contentions for precedence—the *take-me-and-have-me* cry, that keeps ringing in the ears of the anxious enthusiast as he reviews his floral regiments, each and every of which he would enlist for another season if he could—prevent it being such an easy matter, after all, to carry out the advice so easily written, "House all greenhouse plants without delay." Besides, how often, in literally carrying out this advice, are we forced to sacrifice present pleasure in order to realise a future hoped enjoyment; need we wonder, then, that excuses almost without number are made for delay, and that the ingenious man falls upon many schemes for keeping the winter residents of the greenhouse as long out of it as possible. If I do *not* sympathise with dangerous delays, I *do* so most heartily with all means that can be taken to render these delays safe, and thus prolong present pleasure. Of course I allude not to greenhouses that are green and beautiful *only* in winter and spring, but a barren desolation in summer, as they still are to be met with, in places not only small but large. The only advantage that can be realised from such a practice is, the security for having such houses perfectly clean (if they are not made into lumber rooms in summer), an advantage which is far from compensating the contrast exhibited between them and the loveliness and grandeur around them. Few of our readers, I presume, are in danger of erring in this respect. The engrossing question with them is, "how to make such small houses as attractive as possible," at every season, and in every day of the year; and, therefore, as soon, nay, before the usual occupants were moved to snug quarters in summer, means, almost countless, were

in operation to render the greenhouse as attractive as though somewhat distinct from the external scenery. If this had not been done, if the houses were empty, I would have recommended all the usual occupants to be housed by the 1st of October, and all the air possible given them, unless when very rainy or very cold. But where there are still lingering beauties we are sorry to part with, and we can contrive means of partial protection, I would not house the hardier things until towards the end of the month, as they will require more air than will suit some of the temporary favorites now in bloom. For instance, many of the hardier stove plants are the best of all for ornamenting the greenhouse, and even the window in summer and autumn. Whether THE COTTAGE GARDENER had anything to do with it, or not, one great favourite of ours, the *Gesnera zebrina*, has been seen by us rather frequently this autumn in small greenhouses and windows, almost as fine as ever I witnessed it in a plant stove; and in some instances, at least, the only coaxing it received or required, was placing the roots, in April, under a hand-light in the corner of a small greenhouse. Indeed, I should not be greatly surprised to find nice little plants of this beautiful velvet-leaved flower, which the ladies admire so much, as common in our windows as the dahlia is in our gardens. Now in a greenhouse, with no great quantity of air, and in this warm weather, this plant, both in leaf and flower, will just be in its beauty; but the throwing open the whole of the sashes, so as to suit Heaths and Epacrises, would soon cause the leaves to curl, and the flower-buds to stop expanding. Then there is the *Salvia splendens*, which some time ago I heartily praised, which will stand in a very low temperature, provided actual frost does not reach it, and which now, if struck early, will be in full bloom; but that bloom will drop prematurely, and you will only have the scarlet calyx to look at, instead of the long-tubed corolla, if the plant is exposed to a very breezy atmosphere at this season and later. The only thing that can be done to preserve such plants in their full beauty for some time longer, and at the same time to permit housing hardier plants which require plenty of air, is to keep them at one end by themselves, and give no air there whatever. Here, again, is a lover of *Fuchsias*, that from starting and potting late, and rich top-dressing in September, has now a most beautiful show of healthy blooming plants, and it does seem hard to tell him that out they must come to make way for his *Azaleas*, *Camellias*, &c., that will not yield him a flower for months to come; and yet, unless he can manage to keep them secure, out his *fuchsias* must come, or the others may be permanently injured. And there, again, is another case that often meets our own observation. A house where *creepers* make a conspicuous figure, and the shade of which, when allowed to stream about somewhat naturally, just suits the rather tender summer residents below them, and doing away with all necessity for canvass blinds. The dull, warm weather, after a bright summer, enables them to bloom just now more profusely than ever, and it does seem hard to insert the knife, and sweep away hundreds of shoots, clothed for yards with expanded and opening flowers, and yet it must be done, and immediately too, to admit light, unless we have other conveniences for sheltering the plants a few weeks more. If not, the only thing is to make a compromise, and clear a portion, and take in the tenderest first. And which are these?

Geraniums, if of the florist kinds, and good sorts, should be housed early. If exposed alternately to wet and cold in the open air, the disease called the *spot* is almost sure to seize them, and a whole season may be spent before, by care and attention, you can manage to get rid of it.

Next, all *fine hair-rooted plants* should be attended to,

and at least got under cover—a heath, an epacris, or an azalea will not show the bad effects of standing out too long so soon as some other things, but the injury will be more permanent. If the pots are plunged, the danger would not be so great as when the roots are exposed. This holds true of all greenhouse plants, but especially such as these. If the wood is well ripened, it requires considerable cold to injure the tops, but the pots, when exposed alternately to wet and dry, and standing free all round, are so easily cooled, greatly by evaporation, that the roots at the side of the pot are frequently injured at night, though no trace of the extreme cold they have suffered be observed in the morning. Another reason why standing out late in autumn is dangerous, is owing to the frequent showers that generally fall then, not that they themselves, unless very cold, do any harm—quite the reverse; only that, they render all criteria as to watering, or not watering, a mere matter of hap-hazard. I have seen instances of *azaleas* and *heaths* next to immediately injured from this cause, and which was not discovered until after turning the plant out of the pot. It was found that the lower and middle parts of the ball were as dry as dust, while for a couple of inches on the surface it was moist enough. The cold and drizzling showers that a plant will endure when turned out in the open ground, must not be taken as the rule of what a neighbour plant will stand, that is exposed to the open air in a pot. Saving from heavy rains must now form an element in our systems of temporary protection. I have seen large plants of greenhouse azaleas pass the winter in the open air, protected merely by the dense branches of overhanging trees, and these plants flowered the following season rather well, for the buds were matured in summer; but in every case in which these plants are exposed to a low temperature, you run the risk, if nothing worse, of changing them from evergreen to deciduous, as most of the leaves will fall before the blossom expands. Next to these, nay before them, *Cinerarias* and *Calceolarias* must be secured. Both will bear a low temperature, and be none the worse for it, provided frost and damp be excluded. With plenty of light and air, a damp atmosphere will do them little harm. Moist, stagnant air now is their ruin, and more so during the winter. If necessity forces us to keep them close in winter, our only safety will be in the lowness of the temperature, if it is just above freezing. *Cacti* will be quite safe if dry, and where frost cannot reach them. Few of them will have had any water for a month past, and they will want little or none for four months to come. We must except the *truncatus*, and winter-blooming kinds, which will now be showing their buds. These must have the warmest position in the house. *Chrysanthemums*, when grown in earnest, should now be either housed, or placed under temporary protection, that the buds may not be injured. The sooner they are protected, and watered alternately with manure and clear water, the finer will be the flowers.

Preliminaries. First, *Cleanliness*.—This should extend to the pots; all green, slimy, fungous matter should be scoured off, and the pots dried before being housed. Not that in a well-drained pot the dirt on the outside does any great harm, farther than having the tendency to spread itself and grow, but then the look of nice, clean pots is more cheering than green, slimy ones. The branches, also, should not be forgotten. Any accumulation of dust, or insects, or withered leaves, must be duly got rid of before placing them in their confined winter quarters. Tying and training should also be attended to, as it can be more easily done than when all have been nicely arranged, though, to be sure, there will be many wet days, and cold ones too, when doing such things will be next to a luxury. And, lastly, for good plants designed to be grown as specimens, it is

now far too late to think of fresh potting, but the plants will be benefited, and neatness and tidiness promoted, by scraping a little of the old surface soil from the pots, and placing on a little fresh of the compost in which the plant most delights. When washing or scrubbing the pots, be careful that none of the filthy water finds its way into the soil, as, in many cases, it will do more harm than can be neutralized by the best drainage and the best preparation of compost. R. FISH.

HOTHOUSE DEPARTMENT. EXOTIC ORCHIDACEÆ.

ORCHIDS THAT THRIVE WELL IN POTS—(Continued from page 24).

STENORHYNCHUS SPECIOSUS (Showy S.); W. Indies.—Flowers a bright red, growing from the midst of the plant on tall stems, sometimes a foot high. The leaves grow in a compact mass, close to the soil; they are broad-spear-head-shaped, nearly six inches long, and of a lively green. As the flowers appear in the autumn, and last through the greater part of the winter, they render this plant very attractive during that dull season of the year. They are easily propagated by division, and, therefore, several plants may be grown for the purpose of decorating either the orchid-house or the stove, at a time when flowers are comparatively rare. Good strong blooming plants may be had for 7s. 6d. each.

SPIRANTHES GRANDIFLORA (Large-flowered S.); St. Vincent.—Flowers white and green. A handsome herbaceous plant, with tall flower-stems, worth cultivating. 21s.

S. PICTA (Painted-leaved S.); Trinidad.—Flowers greenish yellow. The leaves are the chief recommendation of this plant. They are, as it were, beautifully painted in blotches and streaks with white upon a green ground in a most pleasing manner. 10s. 6d.

There are several more species belonging to the two genera we have noted above, but for want of sufficient attractions in foliage and flowers, and as we profess only to notice such as are really worthy of cultivation, we shall omit them here. Further information about them will be found in *The Cottage Gardeners' Dictionary*.

Culture.—All the plants belonging to these two families are what has been denominated terrestrial (growing on or in the ground) in their native habitats, and consequently require a corresponding treatment in their general management.

Soil.—The earth that accompanies the roots when they are brought over to this country is remarkably like our common yellow loam. Observing this, we adopted loam pure and unmixed to grow them in, and we find it suits them much better than any compost, using only the turfy part, partly decomposed, in a roughish state, excepting a thin cover of finer soil on the surface.

Drainage.—This must be perfect and open; to effect which, place a large oyster shell, or a large potsherd, over the hole at the bottom of the pot, then a layer of larger pieces over it, and a third layer of smaller pieces upon them, and cover this drainage with a thin layer of sphagnum or other moss. The drainage need not occupy more than one-fourth of the depth of the pot, because though these plants will not bear stagnant water, yet they require a body of soil to grow in, and contain their large clusters of long fleshy roots.

Potting.—The soil should be well aired, and nearly as warm as that in which they grow at the time of potting. Early spring is the best time. All being ready, proceed to work by bringing the plants to the potting bench, placed in some warm shed or room; turn them out of their pots carefully, clear away all decayed roots and leaves, and shake off as much of the old soil

as possible. Should any of the plants be sickly, it is now a good time to give the roots a complete cleansing by washing them in tepid water, and scraping off all decaying or cankering parts, having them laid upon some place to dry and heal up the wounds; three hours will be sufficient for this purpose. If the roots are sound there is no need for this washing. Pull in pieces some of the turf and place a thin layer upon the drainage, then put the plant into the pot. This, in cases where the plants are healthy and strong, will be found somewhat difficult to do without breaking; the best way is to first put in the ends of the roots, and then gradually work them downwards by turning the plant round; this will be found rather difficult to a new beginner, but, with a little practice and care, this difficulty will vanish, and the operation become easy. When the roots are all fairly got into the pot, work the turfy soil in amongst them carefully, for if this is roughly done the roots will be bruised, perhaps torn off the collar of the plant where they spring from, either of which we may be certain will be highly injurious to the future health and growth of the plants. As soon as the potting is finished give a sufficient watering to settle the earth about the roots, and then place them in a part of the orchid house where the heat is moderate. If there is the convenience of a tan-bed, plunge the pots in it two-thirds of their depth, the mild bottom-heat will assist the growth much. Give moderate supplies of water, as they require it, all the growing season, up to the period of blooming, after which lessen the quantity gradually, but never entirely withhold it. These plants may be described as evergreen, and, therefore, require a certain degree of moisture at the root all the year to sustain the foliage in vigour and beauty; yet they must have, in a degree, a period of rest, and this period very opportunely may be obtained after they have bloomed, from January to March, a season of the year when the weather in our climate is generally the most severe, which severity has an effect even upon plants in our warmest stoves. After the season of rest, repot, and commence again the yearly treatment.

T. APPLEY.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS.

It is the fashion for those who cannot think and write originally to copy us. We wrote in favour of making a larger series of prizes in every class, and for every subject that was to be shown, years ago; and the first time we had it in our power, that is, when we had the sole individual control of the Grand Dahlia Show at Baker-street, we carried it into effect by making ten prizes in each class, to be increased to two-thirds of the number of competitors; the result was that in one class there were nineteen prizes. This was partially adopted directly, and now it is adopted in most sound Dahlia Societies. We urged its propriety in every possible shape; now it is becoming pretty general. In florists' flowers it is in most of the floral counties they carry it into class showing, and give ten or twelve prizes in each class; and, be it remembered, that it is class showing alone that does any good in promoting the advance of a flower, or that gives the public any idea of the standing of a variety. We hope class showing will be advocated by this journal. A flower may be worthless, and yet succeed in a stand; and it is a common thing for a man who has a new flower to sell, to put it in his stand with eleven or twenty-three excellent blooms of old favourites, and then boast of its success in stands. The Metropolitan Society put a stop to this by excluding from stands everything that was not let out to the public. A new flower serves also to mark a stand, and places the judges in the unfair position of knowing to whom it

belongs. In class showing the thing is too barefaced to be attempted. When single blooms are close together, they speak too plainly for their own merits to be played tricks with.

Messrs. Veitch & Sons have a new half-hardy *Calceolaria*, tolerably shrubby, which may be of use in crossing, for our fancy kinds are spoiled in that respect; or it may be used as a border plant. It has been shown at the Horticultural Society, where it had a medal. It is from Peru; and may be the means of improving a family spoiled by the injudicious encouragement given by the Horticultural Society to herbaceous *Calceolarias* at the same time they were giving it to shrubby kinds. It led to spoiling the latter altogether.

ANNUALS.—We cannot recognise *annuals* as belonging to florists' flowers, because there can be no permanence, no dependence on seedlings. The *Phlox Drummondii* (V. P., Stoke) is certainly as good as it can be, but it cannot be named, for it will not be constant. The proper way to show annuals is the whole plant in a pot, where growth must settle it; or bunches of cut flowers, where colour and form must decide the fate.

HOLLYHOCKS (J. M.).—Greatly behind the metropolis; there is not one among the numerous collection sent that would do among our superb varieties. Every grower within twenty miles of London (and Birkham, of Bungay, runs a very reputable race with them) adds something good to our stock every year.

BOX OF DAHLIAS OF 1851 (S. S.).—Only one (No. 3) need be tried again; the petals are a wrong shape, and cannot make good flowers. (Rev. E. S.).—The only ones we should try again are No. 1 and No. 4. Light flowers, with distinct characters, are scarce; and these, although of the *Radzville* breed, are so distinct, one lighter and one darker, that if they prove as good when well grown they will do.

PANSIES (P. T.).—We cannot decide in favour of any; there is not one which has its natural colour or character. Pull out of the seed-bed all the ill-formed, but not the merely indistinct ones, for these may be as different from themselves in the spring as two varieties could be. (B. B.).—Striped variety too small, and very inferior to a dozen that are coming out in the spring, perhaps in the autumn.

FUCHSIAS (X. Y. Z.).—No. 1, nothing but coarseness; No. 2, like *Duchess of Sutherland* too much to be sent out; No. 3, hugs the corolla too close to be good for anything; No. 4, not so good as *One in the ring*, and something like it without so good a contrast.

SIX BLOOMS OF THE KING OF THE DAHLIAS (S.).—Nobody can complain about size; and those who discover the one fault of reflexing, and lose sight of the splendid form. Those who commiserate our so-called blunder in praising it as a first-rate variety, are not to be blamed for their ignorance, but for their obstinacy. We praise the *King of the Dahlias* because it has but one fault; we shall be glad to hear of some other variety that has only one fault. We have sent the six blooms to Lancashire, where The King has been placed first in class showing, and where the judges are not so wrapped up in size and coarseness as some are in the south. They will see from these specimens that it may be made to compete, even for size, with some of the principal favourites. There is not one cupped flower in a hundred that has the eye even with the surface; and we, who laid down the rules, decide, and will decide, that a cupped petal does not compensate for a flat face, or a sunk eye. The *King of the Dahlias* will be grown by everybody next year.

DAISIES (A. B.).—Blooms too small, and out of character. We have seen the continental collection of one hundred-and-fifty sorts, and will next week give our opinion of the very few worth growing—if daisies are worth growing in collection at all.

We have received blooms of the *Great Western Fuchsia* again, and they are monstrous. It will be grown in collections as a curiosity.

We have received no *Tulip* called the *Crystal Palace*. If sent to us, it has foundered in the post-office, for it never reached us.

There will be a hundred *New Geraniums* offered. We shall select, as soon as we get all the catalogues, a few that our readers may buy without being disappointed, and leave them to please themselves if they want to go further.

Blooms of the *Mimulus Gigantea* have been received; they are the largest we have seen, and, perhaps, the brightest, although they are no advance in the form. Those who grow the *Mimulus* must have it for its size and brilliancy; but we do want to see a good round lip.

The best and dearest *Hyacinth* is *Holloom*; but, although it is in all the Dutch catalogues, nobody seems to have it when wanted. The only bulb we have seen of it was at Mr. Lookhart's, in Fleet-street, and he only obtained one out of a considerable order. It is, therefore, no use mentioning it among the best of the best, because it would lay a person open to being deceived by something being substituted. It would be worth fifteen shillings or a pound.

FLORISTS' FLOWERS CULTURE.

THE *RANUNCULUS*.—Perhaps there is no florists' flower, when grown successfully, that gives more satisfaction than the *Ranunculus*. It must, however, be acknowledged, that success does not always attend upon its cultivation. The causes of failure, if certainly known, would lead to a more successful issue; but they may arise from such different causes as light soil, or too little moisture at the roots when growing, or from small, weakly, or injured roots. From one or other of these causes, or, perhaps, all combined, the crop of blooms will be scanty, small, and ill-coloured. And that is not the worst, the roots will, as a matter of course, be found smaller when they are taken up after the weakly bloom and sickly growth are over. Besides, if the same course of culture is persevered in, the evil will increase year after year; the roots will become smaller and smaller, and finally go out of existence entirely. This is not an imaginary case; we have frequently seen it even in places where better things might have been expected. On the other hand, we have seen, and proved, that by using proper soil, supplying abundance of moisture, and planting in the blooming-bed nothing but fine, strong, healthy bulbs, a fine bloom is as sure to follow as in any other bulbous florists' flower.

We trust, by the following directions, to render the culture of these truly elegant (in the fullest acceptance of the word) flowers easy even to the veriest tyro in *Ranunculus* culture. The subject divides itself into—1st, Situation; 2nd, Soil; 3rd, Planting; 4th, Watering; 5th, Shading; 6th, Taking-up and Storing; and lastly, Propagation.

1st. *Situation*.—It is only a waste of time and money to attempt to grow these flowers in improper situations. For instance, within the influence of a smoky atmosphere near large towns, or upon a high hill in a dry soil, or in a swamp, are very objectionable. If it is in the power of the florist, let him choose a place for the *Ranunculus*-bed, neither too high nor too low—let it be a level surface, for reasons hereafter to be mentioned, and if it be sheltered by some means or other from the northern blasts, so much the better.

2nd. *Soil*.—The *Ranunculus* being a moisture-loving plant, the soil should be of a retentive nature; that is, capable of holding moisture for a considerable time. The best kind for that purpose is the virgin mould of some alluvial soil on the banks of a river, or some low-

land pasture. It should be of a rather close texture, without any small stones or sand amongst it. In many gardening books the directions for the *Ranunculus*-bed are—"plant them in good garden mould, well enriched with rotten manure." Now, a novice in gardening would immediately conclude that his garden, if the soil was light, and well worked, that it was good garden mould, and that all he had to do was to dig in abundance of dung, and then plant his choice *Ranunculus* roots in it, and all would go on right, and at a railroad speed. Upon this point many an ardent young florist has failed—has become discouraged, and given up the culture of *Ranunculuses*, because he considered them, from his non-success, as being difficult to grow. Whereas, all that is required in respect to soil is to procure some of the kind mentioned above, lay it up for a year, turn it over until it is well incorporated, and then resolutely wheel out the old soil to the depth of a foot or more, place a thin layer of very rotten cow-dung at the bottom, and upon that place the fresh soil. If the situation is low, with a wet subsoil, it must be well drained, but if the subsoil is dry, there is no necessity for drainage; in fact, it is, in such a case, injurious, especially in dry summers. In wheeling in the soil, if it should be thought to be too poor, a small addition of decayed cow-dung will be advisable; but remember, it must be so well decomposed as to appear like a black powder. Let it be thoroughly mixed with the soil, and in order that this may be effectually done, let the bed be formed in dry weather, about the month of September. All these special preparations may appear formidable to the uninitiated, but it may be overcome by diligence, and *not being in too great a hurry*. If the garden itself has been formed only a year or so, the soil in it may answer. What we protest against is the expectation that the old worn-out soil of a garden should be thought good enough for the *Ranunculus*.

T. APPELEY.

(To be continued.)

THE KITCHEN-GARDEN.

TRENCHING—Resuming this subject from page 39, where we advised the liberal use of mortar, or rather lime-rubbish, as a means of improving the staple of stiff loams and clayey subsoils, we may add that, in addition to that useful article, and the others mentioned, we have seen the refuse chippings of stone from a quarry used with great success: The kind we saw used was free-stone shatter, a sort of sandstone, in pieces never larger than half a brick; this material, dug into the subsoil of a piece of ground previously very stiff and retentive of water, materially improved it, and an experiment of the same kind in the same neighbourhood, we witnessed, when the same kind of stone-chippings were laid on a piece of stiff land and ploughed in at the rate of some 60 or 80 loads per acre, the result was highly satisfactory, so far as the crop was concerned, as well as the future tilling of the ground; we therefore advise our gardening friends, whose kitchen-garden consists of a soil on which they can hardly set foot in wet weather, to look around them and see what materials their neighbourhood contains likely to improve it. Anything that can be had in quantity, of a kind diametrically opposite to the soil intended to be improved, will do. We have dug in the bottom of the trench large quantities of common chips, and other waste from the carpenter's yard; as well as weeds, decayed vegetables, and other rubbish of that kind; sometimes fresh vegetables, but then we carefully avoid horse-radish, Jerusalem artichokes, dandelion roots, couch grass, and some others, which find their way upwards more than most plants. In fact, anything that will prevent the subsoil from again consolidating itself into a hard substance will do, the object being to make

it accessible to the roots of plants when driven by hot weather to seek food lower down than they had previously depended on for it; besides, a luxuriant crop requires an adequate space to supply its wants, and unless the season be favourable for the well-doing of such crops, which it rarely is, those periods of dry weather which we usually have in greater or less extent, will tell how much of their welfare is due to their culture; certainly there are other matters to be considered as well as the trenching and preparing of the subsoil, but these subjects we intend to treat off hereafter.

We now come to the treatment of soils of an opposite character—*hot dry sands* or *hungry gravels*. These last, unfortunately, are the most sterile or ungrateful of all garden soils, yet they have their good properties. Tender vegetables, as well as other plants, stand the winter better on such soils, and it sometimes happens that, in a cold wet spring, seeds would perish in the stiff, heavy soils that luxuriate and grow in this, and lettuce, endive, spinach, cauliflower plants, &c., which stand, and partially grow through the winter, do better on a dry, poor soil, than on a rich, heavy one. But, on the other hand, the blue look that cabbages assume in dry weather, the withered up pea, the lettuce running to seed, and other vegetables stunted and unhealthy, bespeak, in language unmistakable, the want of fertility in the soil. Now the usual way to overcome this is by liberal and oft-repeated applications of manure; but this method, though doubtless good, is, we think, not the only one calculated to reform the evil. Following the same principle we have laid down for altering the character of stiff soils, but reversing the means, or rather the materials employed, we want, in this case to arrest a part of that ruinous percolation by which the juices, or best parts of the dung employed, is carried down below the reach of vegetation. Now it is only reasonable to suppose that some substance, antagonistic to the one in question, must be the most useful for that purpose, so that our readers will easily guess that we refer to clay, marl, or some other unctious material; the mud from the bottom of ponds is very good, as well as several other substances, such as the cleaning of ditches, scrapings of roads, &c., &c.; but the most useful is that unctious clay or marl, which is found in great quantities in some places. This, if applied in liberal quantities, improves both the surface and subsoil, but it is to the latter that we mostly address ourselves; we therefore say, wherever a large quantity of this exists in the neighbourhood of a garden partaking of the character denoted above, let it be procured and trenched in with an unsparing hand—the result will soon manifest itself. Even stiff, unproductive-looking clay may be used with a beneficial effect; it is useless to object that such poverty-stricken materials can be of no use. We have seen clay of a very tenacious kind laid on very thickly to a piece of peat moss, ploughed in, and excellent crops follow. In fact, any soil of an extreme kind may be so modified, by a due admixture with that of another of opposite qualities, as to become more productive as well as altered in its character. We do not mean that a complete radical change will take place; many circumstances, over which we have not absolute control, will operate in preventing a piece of stiff loamy ground in a low situation from becoming the same as the light sandy one which exists elsewhere, whilst no ordinary application of retentive matter will convert the latter into the stiff soil of the district, commonly called good “Wheat lands;”—the porous substance below will always suck the extra moisture from it, added to which, we believe nature has a tendency, though a slow one, to restore such things to their former position, and we have no doubt that the stiff retentive clay, dug in amongst sand, will, after a series of years, be swallowed up by the all-prevailing mass, and all traces of its existence be lost sight of. As an instance of that kind, though of a contrary

description, we once saw a kitchen-garden made in rather a damp place, and the spirited proprietor, anxious to make it a good one, had very good fresh soil from a dry hill carted on to the depth of several feet in some places, but some years after we saw the ground opened, and part of what had once been fine maiden loam, or soil, was a soured mass, heavy, retentive, and fast approaching to those unfertile clays of which we have been speaking. Now we guess our readers will be saying this might have been prevented by judicious draining; and whether this was attempted or not we cannot say, we only give the case as an example of what we have been advancing.

In concluding this article on trenching, we by no means limit the operation to those soils which have a barren or impervious substratum; the deep mellow loam, so congenial to the growth of most things, is much improved by being tilled two spits deep, now and then, but in their case little or no auxiliary matter will be wanted at the bottom, unless it be manure to entice the roots of carrots, beet, &c. But, as these things, as well as asparagus and many others, require a special treatment, they will be noticed in their proper place, here we only speak of trenching in general, and have hitherto advised the top and bottom spits to retain their respective places again, except such a little admixture as takes place to a certain extent in spite of the most careful management, but this little will be beneficial rather than otherwise. When, however, the depth of staple soil is such as to contain a second spit, little, if any, inferior to the first, in that case it may, to a much greater extent, be brought to the top, and more especially so if it has to lie some time before it be cropped, when the sweetening influence of the atmosphere will prepare it for receiving whatever is planted upon it. Fortunate is the gardener who is possessed of such a soil; the capricious changes of the season will have but little impression on his crops compared with those soils of the two extreme kinds we have before mentioned. Yet it will want the same amount of tilling, and the oftener it is trenched the better it will be, always provided it be not done in a very wet state; and if it is intended to remain some time without a crop, let the surface be left as rough as possible. The method we adopt is as follows: the ground is divided into trenches of about two feet or more each, and the top spit of the first trench, and about half the width of the second, is removed to the end where the finish is to be made; this extra half allows more room for operation; then the mortar rubbish, or other material to be used, is placed on the excavated part and dug in, beginning at one end by taking a few spadefull out, so as to have a sort of furrow in which to bury the materials (if there be any) intended to amend the subsoil. Observe, this trench is only two feet wide, although three feet had been stripped of its external soil. The bottom being done, the remaining half of the top of the second division is thrown over the digged-up part of the first, laying it in as rough a manner as possible, and not throwing any shovelings amongst it; the second bottom is then treated similarly, and the whole of the top of the third is thrown over this, there being now room for it, taking care always to dig the top part as deep as possible, as no shoveling is allowed. It is hardly necessary to remark, that dung, or any other manure, may be mixed with the top soil if advisable; but this will be regulated by the nature of the future crop, and other considerations.

ASPARAGUS.—The ripened condition of the haulm of this vegetable, as indicated by the yellow tinge it assumes, points out the proper time to cut it, which had better be done on a dry day, and the seed-bearing ones being picked out, the remainder may be set away somewhere, as they are useful for coverings in winter. We prefer keeping all seedy ones away, whether seed is

wanted or not, as we have sometimes found it a troublesome weed sowing itself where not wanted. Usually a little seed is wanted every year, which save from the best. Clear the beds from all weeds, and slightly fork them up, adding some good rotten dung or other short manure if it is to be had; if not, do not cover the beds with coarse litter under the plea of protecting the roots, as the soured condition the ground is in when that litter is removed is anything but beneficial, but if the crowns of the plants be near the surface, rather cover them with earth taken from the alleys or intervening spaces, leaving the whole in a rough state for the atmosphere (the best of all fertilizers) to act upon. If forced Asparagus be wanted early, no time must be lost in preparing for it, taking care that your dung-bed, if you use one, be not too warm for it at first; where apparatuses, heated by hot water, are at command, this difficulty is easily overcome.

SEAKALE.—This vegetable will also require to be put in motion now, if it be wanted at any time this side of Christmas; as, like everything else, the first batch submitted to the quickening influence of heat is of more slow progress than succeeding crops, and when forced in the open ground we have often seen it refuse to grow at all when the heat was at all rank, or beyond a very moderate warmth, so that, for many reasons, it is better to sow some seed every year, in order to have plants to take up and force. In very good ground we have seen them grow as large as medium-sized Carrots the first season; when so, they are quite large enough to take up, but two-year-old plants are more often used; whichever they may be, let them be taken up with the root as entire as possible, and planted, not too thickly, in

some suitable place. We have seen them do remarkably well in a sort of closet by the side of hothouse fires, which are in motion at the time. We have also had them in a mushroom-house, with very good success; or we have had them in a dung-bed, with a dark frame over them. A genial heat is all that is wanted to enable the buds, which contain the future heads in embryo, to develop themselves to the best advantage; and the credit is, in a great measure, due to the accumulated matter stored up in that bud, to which the whole plant acts as a storehouse; so that, in digging it up, it is obvious any injury sustained by the plant must be placed to its account as so much loss. We shall probably return to this subject hereafter; suffice it now to say, that in whatever condition it be placed in to force, means must be taken to insure a certain amount of moisture, yet not too much, or the plants will perish, but just sufficient to make the vegetable crisp and tender, which it would not be if kept in too dry an atmosphere. Unless it be covered with sand, ashes, or other material of that sort, total darkness is indispensable.

SUNDRIES.—*Celery* and *Cardoons* earth up at favourable opportunities; the latter will require to be first tied round with haybands. *Cauliflowers* will now be fit to prick out into a frame, having the soil raised to within a foot or less of the glass; some of the largest plant at once into hand-lights where they are to remain. Gather the last of the *Tomatoes*, and hang the green ones up as previously recommended. *French Beans* must be protected if they are wanted for a late supply; and on wet days see to the stores of *Carrots*, *Potatoes*, *Onions*, &c.

J. R.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

In almost every parish there exists some object of peculiar interest, some person suffering from one or other of the special calamities that afflict the children of men, which human skill cannot heal, and which call loudly upon our sympathies, however lowly and obscure the sufferers may be.

William Dyer (the subject of a former paper) has a son who has been blind from his birth; and a most interesting lad he is. As a little fellow in petticoats, he used to be seen running about the lanes, led by his brother just younger than himself, who seemed to have been trained to the business—took the greatest care of him—and never appeared to get out of temper because of having this helpless little one tacked to him wherever he went. The wonder was that they escaped being run over in the narrow lanes, heedless as children usually are; but the little guide piloted his charge with perfect safety, and nothing ever molested them.

As little Henry grew older, Dyer's master became much interested in him, and by his means he was placed under the care of a master of a school in a neighbouring parish, under the patronage of a lady of rank, where he was kindly treated, and taught as much as his humble instructor could teach a blind child. He was very quick, and intelligent, gentle, and obedient; everyone liked him, and spoke well of him.

The object Dyer's master had in view, was to obtain him admittance into an asylum, where he might be taught a trade, and enabled to earn his own bread, but the difficulty of effecting this was so great, that a less kind or resolute friend would have been quite disheartened. The letters this gentleman had to write to interest friends and obtain votes for the poor little fellow, amounted to a great many hundreds; but at last he was rewarded for all his benevolent exertions, by receiving the boy's nomination, and an order for his immediate admittance.

Dyer, who was at this time so far recovered from his severe illness as to walk about, took his child round to his different friends before his departure, and it was a very interesting sight. The consumptive-looking parent leading his little blind boy—the one apparently sinking into untimely decay, the other just entering upon life under circumstances so affectingly sad—going forth into a world he could never see or comprehend, and leaving behind him all to whom his calamity had made him cling so closely.

The boy sang some of the hymns he had learned at school. There is extraordinary plaintiveness and feeling in the voices of the blind; and it touches a chord in every heart to hear them praising and magnifying Him, whose wonders on earth, whose glittering firmament, whose day and night, are all hid from their eyes, and who is Himself their great and only "Light." Little Henry brought with him his book of raised characters, which had been kindly given him, and in which he had been taught to read. It was, I think, the Gospel of St. John, and it was deeply affecting to see his little hands spread over the pages, feeling the words with his fingers, and reading with ease—as he did so, in spite of his sightless eyes—the Word that giveth life. Blessed, thrice blessed is he, whose benevolent heart led him to use his talents thus in the cause of the afflicted, and invent a means whereby the blind may "search the Scriptures," and, amid their cheerless darkness, acquaint themselves with God! The sons of science, whose knowledge has led them to bore through mountains, to traverse arms of the sea as though it were dry land, to bring distant countries almost to our doors, and men to converse together as it were face to face, when hundreds of miles stretch between them—all these wise and mighty men stand silent before him who holds in his benignant hand books that the blind can read.

Two years have elapsed since Henry Dyer went to the

Blind Asylum, and in the course of this last summer he returned home to pay a short visit to his parents. His father is still able to walk about, although not to work; and it was a joyful day when he again led his son about to visit his friends. The boys' manner and appearance were strikingly improved—his intelligence remarkable; and all he said was good as well as sensible. The tears fell from his sightless eyes, as poor Dyer spoke of his own trials and difficulties; he seemed to be full of feeling for his family, his friends, and all those with whom he lives in London; and it was really quite wonderful to observe the shoot his mind had made under the course of education at the excellent Asylum. He was kindly treated there, and was as happy as possible; and he appeared to take great delight in learning all he could. He is being brought up as a shoemaker, and he brought down with him a little pair of shoes to show what he could do. They were well and neatly made; and he had, according to the rules of the establishment, earned some money, enough to pay for his own journey home. How surprising it is, that without the blessing, the special blessing of sight, man should be enabled to perform such beautiful and useful work as the blind can do! How graciously does the Father who withholds one sense improve the others! and how keen and acute is that sense of touch which really becomes almost eye-sight to those who sit in bodily darkness.

Little Henry is also learning music, and he spoke with great intelligence and simple fluency upon that subject, so delightful always to the blind. We could not help smiling at the look of admiration, almost reverence, with which Dyer gazed upon his child, conversing upon things of which he himself had never heard; so far superior to all he had been born to, and which seemed to promise future blessings for himself and his family.

If children knew the happiness their parents feel when they do well and steadily, they would strive to become good and diligent in their different little ways. If any young readers glance over this page, let them think much of Henry Dyer, the little blind boy. Let them remember what he is doing, without eyes to see, or the glorious light of day to shine upon his daily labour. He is a little clever shoemaker, earning a few shillings now, while he is still at school; and looking forward to support himself with credit and respectability in a few more years. Ah! how many little children, with sight to enjoy the beautiful world around them, are wasting their time in idleness, and sometimes vice; throwing away the blessings that God has given them, and neglecting to use the powers that are now strong and active within them. The conduct of the little blind boy is a beautiful example to all young people. He works diligently with his hands, he sings praises to God with understanding, and his present behaviour promises well for the time to come.

We are all, *by nature*, blind; but He who enables the afflicted in body to overcome the trial, can open the spiritual eyes, and lead us into the yet more glorious light of Gospel Truth. The light of day is indeed a blessing, but the "Light that shineth in darkness," is more bright and precious still.

NEAPOLITAN VIOLETS.

FINE flowers, such as the beautiful Neapolitan Violets, throughout the winter and early spring months, are, to most lovers of floriculture, a valuable acquisition. Many people, there can be no doubt, cultivate this beautiful Violet luxuriantly and with perfect satisfaction, whilst others seem to be less fortunate; and as the season is now arriving when the young plants should be put in order, it may not be amiss to state the manner in which we have, for a number of years, succeeded admirably.

A warm, sheltered corner is chosen, trenches are cast out a foot deep and five feet wide into the alleys, and a turf-wall built all round to the desired height, for holding about fifteen or eighteen inches of leaves, rubbish-heap refuse, or any kind of procurable fermenting materials that are likely to afford a little bottom-heat, upon which are placed about eight or nine inches of rich, open, healthy soil. The width is regulated by any lights that may be likely to be spared for a time, or thatched hurdles, or other protectors. The plants are taken up from the store plantation carefully, with balls of earth to their roots, and planted from ten to twelve inches apart each way; first clearing them of any side-shoots

or suckers, if any there be about them; they are afterwards kept clear of dead leaves, &c., well surface-stirred, and never allowed to get dry. No lights or protection are placed over them until frosty nights set in, or very heavy rains; they are then, at all times, tilted on both sides, with abundance of air given, if the weather is not too severe. By such treatment the foliage is always large, thick, and of a beautiful dark-green, the flowers abundant, and large. No side-runners are allowed to run until April, at which time they are encouraged to grow; and open, sandy, rich soil is sifted amongst them, and kept well-watered to encourage them to root freely. A partially-shaded piece of good healthy ground is then chosen in the month of May, and the Violets are then forked up, old and young altogether, and the best of the young plants selected and planted out, a foot apart each way, singly. They are kept well surface-stirred all the summer, and by October they are fine plants to take up as above-described.

Russian Violets—*Single White*, *Double White*, *Double Blue*, and other hardy varieties—we grow in a similar way, with regard to planting out the young runners and summer treatment, and they are also carefully taken up in October; some are placed in turf-pits, with gentle bottom-heat, and some without bottom-heat, and a quantity are planted on sloping banks. By this simple contrivance abundance of luxuriant flowers are kept in succession from September till May. Every variety is kept clear from side-shoots or runners all the summer. All the varieties are particularly fond of charred articles mixed with the soil. JAMES BARNES.

FLOWERS FOR THE GRAVES.

"... in our last decay,
Memorials prompt and true."

AMONG all the purposes of pleasure and ornament to which the culture of flowers may be applied, few persons seem to have considered them in reference to the memory of those friends who have left us to join the Church Triumphant. In some wild and, therefore, poetical regions of our island, the custom of dressing graves with flowers has always been preserved, in others it is reviving, and it is very attractive to those in humble life, who certainly feel less dread of death than those who are called their superiors. In a neighbouring churchyard, the green mounds are adorned at Easter by cut flowers inserted in the turf, in the form of a cross, and when well watered, they retain their beauty for many days. A narrow border on each side, well filled, and neatly kept, may be a source of much pleasure, and may preserve in the minds of the young a pleasing remembrance of those who loved them once. Never fear that the village children will rob or injure these little gardens; the experiment has been tried; they will soon be busy in imitation round the graves of their own friends. But, then, never introduce any plant of value, which may excite a covetous thought. Avoid, also, those which require frequent tying-up, or other attention, unless you can promise yourself to continue a frequent attendant on the weekly services. Not by even the semblance of voluntary toil let the Lord's Day be profaned; but other seasons will afford opportunities for a few minutes of gardening, and for plucking a blossom to bear away in thankful remembrance of those who are in peace.

Various plants may suit various feelings and circumstances. One flower may have been the favourite of the departed; another, by its delicacy, its brilliance, or its fragrance, may present some fancied resemblance to his character. Some are by tradition annexed to different qualities, as—the *Lily* to innocence; the *Violet* to modesty; the little *Wood Sorrel* is said to signify parental love; the *Clematis* that of a child to a parent; and the *Woodbine* that of a brother or of a sister. Round the grave of an infant we might place single *Snowdrops*, so much more graceful than the double; or the bright *Aconite*, the first to bloom, and the first to fade. When these have passed away let us sprinkle a morsel of *Mignonette* seed, which will afford us many a sweet blossom to take into Church. *Mignonette* and *Sweet Verbena* are unlike most earthly pleasures, which require economy and self-denial to lengthen out their existence, for the oftener we indulge ourselves with cropping the tops of these, the more freely the plant sends forth new and delicious shoots. For the resting place of a

young female every one will think of a *Rose*, and no *Rose* can come amiss; but there is one whose name signifies *Beloved* (Aimée Vibert) of which the glossy evergreen foliage, pure white flowers, and pink-tipped buds, produced without intermission from July to winter, seem peculiarly appropriate.

Against the tomb of the village Pastor we would place the Christian's plant, the *Passion Flower*, emblematic of that subject on which he loved best to dwell while we listened so often to his honoured voice. The azure rays around the graceful central column represents the glory which belongs to the sacred objects there suggested, but it is not easy to discover the cross. The writer had often sought for it in vain, till, while holding the flower on the road to church, a sunbeam suddenly revealed it. It is the shadow, which forms a very beautiful cross, if so held that one of the three stigmas should appear higher than the others, and form the upper part. Thus, if we train the plant against a grave-stone, the holy sign may fall upon it, and by simple means we may imitate the beautiful idea which, in suspending the sacred emblem above the resting place of the Reverend William Adams, has cast upon his tombstone "The Shadow of the Cross." Another plant, suggestive of high and holy thoughts, is the *Iris*, or Flag-flower. In ancient church decorations a frequent ornament is the three leaves bound together, which are called the *Fleur de lis*, and supposed to represent the Most Holy Trinity, but it is not the Lily, as the name imports, but the *Iris*, which is so imitated as must be obvious if the flower is inspected. The *Forget-me-not*, the *Pansy* (*pensée*, or reflection), the *Balm of Gilead*, and the *Everlasting*, would be appropriate to any grave border.

Another thought in reference to this memorial is, that gardening may be pursued by planting the grave of a friend with some flower which may be in beauty at the season of the year in which that friend entered into his rest. To ourselves, the anniversary of a bereavement is apt to bring very mournful thoughts. But will not these appear earthly and selfish if, on visiting the sacred spot, we find it glowing with the brightest hues of nature, as if the earth which holds the loved form were striving to equal the glories of that paradise which holds the loved spirit?

For this purpose, if the season be May, a root of *Gentianella*, the rich blue of which is called the colour of constancy, may be chosen for June or July, a *Rose-bush*, or perhaps a root of the double-flowering *Sweet-brier*, or of the *Fairy Rose*, which will open still earlier. For the succeeding months there are endless pretty annuals which may be sown so as to flower at the proper time, and autumnal roses, whose bloom may be improved by cutting off the buds in June. Then may follow *Chrysanthemums*, and in the very depth of winter there are *Russian Violets*, *Christmas Roses*, a *Holly*, or a *Pyrus japonica*, either tied to the headstone or pruned as a bush, in which case it will flower later; and all our darlings of the spring complete the year again.

SHORT NOTES.

Duck-weed on Ponds.—Questions have been asked how to destroy this; now I have a pond so covered, and sedulously preserve it; 1st, because it prevents evaporation, and retains the water when other neighbouring ponds are dry; 2nd, because the innumerable root-fibres of the weed absorb the deleterious particles from the water, and render it clearer and sweeter for house-cleaning, and various useful purposes.

Himalayah Pumpkin.—Two seeds of this were placed with two green-striped, and two yellow varieties, of the vegetable marrow, on the same bed, this spring; they all vegetated about the same time, and the Himalayah plants grew most luxuriantly, but shed their fruit as soon as the flowers dropped off, decaying at the flower end of the fruit; the others did not so; may we not then conclude that this defect is peculiar to the Himalayah Pumpkin, and arises, perhaps, from its not being yet sufficiently naturalised to our climate.

Salvia patens has failed with me this year, dying off in the manner described by your correspondent, R. Fish. I find, however, upon inquiry, that manure-water had been given to them; his suggestions, therefore, as to the cause may probably be correct.

German and China Asters have done worse than almost any other flower. In many gardens whole beds of them

have entirely failed, and those which have survived do not come up to the average standard of bloom; some of the flowers on each plant do not open at all, others have eyes instead of their centres being filled up, and the leaves look withered and yellow. The check was received in the spring, and little growth was made until the autumn, since which they have partially recovered.

Dahlias have also suffered, but not so much, and their flowers this year have neither been so numerous nor so fine. —S. P., *Rushmore*.

TO CORRESPONDENTS.

TO ALL OUR CORRESPONDENTS.—No one should send more than one or two questions at a time. If we were to answer the questions in some of the letters now before us, as fully as they ought to be answered, half of those who only send one question must be excluded until next week.

GENERAL INDEX.—We find we cannot give this at present. When we have passed through another volume or two, it may be determined differently. This is an answer to several enquirers.

BACK-HOUSE BOILERS (*Verax*).—These boilers are of cast iron, and cost from ten-pence to a shilling for every gallon they hold. They are open at the top, and must have a wooden lid. Lead pipes will not do for any hot-water apparatus. Two-inch iron pipes are generally used for such boilers.

PEAR-TREES BEARING ONLY AT THE POINTS (*Ibid*).—The only way to get your Pear-trees to bear all along the branches is to nail in a shoot here and there, from the barren spurs, as Mr. Errington recommends.

MULBERRIES (*Ibid*).—Your trees are too much crowded with branches. You must thin them as you propose. We cannot say where the *Double-white Pear* can be bought. The title of Mr. Rivers's book on orchard-houses, is *The Orchard House*, by Thomas Rivers. Tan is a good medium for bottom-heat, but some other contrivance is necessary for top-heat, except in the case of a common hotbed.

FLOWER BEDS (*Flora*).—Plant some low evergreens in your two beds during the winter, and some spring bulbs between them, or patches of autumn-sown annuals, to flower in April.

ROSES (*Phianthos*).—You did not state the height of your "ivied wall," therefore we cannot say what roses to plant against it.

GLADIOLUS (*Ibid*).—It will not hurt them much to be removed to another bed now, or for the next few weeks. Your bed behind the stable will grow *Dahlias* well enough, only do not have the soil too rich. Any of the early summer annuals will do to flower in the bed before the dahlias, and along with them. We cannot with certainty say what way to alter the American bed without being on the spot; but surely there is not much difficulty about removing the plants that are too high, and putting in lower ones.

SUBURBAN GARDEN (*W—*).—For *Scarlet Geraniums*, take *Tom Thumb*; for Variegated, take *Mangles*; for *Dahlias*, select from our former lists; for a "score of such things as we may recommend," read over Mr. Beaton's lists. The pots for plunging must be according to the size of the plants,—say from six inches upwards.

AMARYLLID (*W. D. Payne*).—We are very much interested by your account of the "Yorkshire Lily," and we have sent to a botanist in the neighbourhood of Ely, to investigate its history, and when we hear from him, we shall give the name and biography.

CAMPANULA CARPATICA (*Fanny*).—The White Carpatia is as hardy as a daisy. If you have greenhouse room for *Tom Thumb*, or any other of the *Scarlet Geraniums*, it will suit them better than any other way; prune them rather close, but by no means strip off all the leaves. A high shelf, near the glass, is the worst place to select for these geraniums kept dry; dryness and darkness, with no leaves on, and secure from frost, are the essentials.

CLIMBERS FOR THE FRONT OF A HOUSE (*T. S.*).—*Glycine sinensis* would cover the front of a large house in the course of a few years, and *Solanum jasminoides* would do so in half the time, and flower from May to November: it is quite hardy on a south wall. The Seven Sisters' Rose (*Rosa Greilii*), and the Rose *Jaune des Pres*, would soon cover a large space; and they require a good wall to get them up to perfection. *Laura Davoust*, a charming climbing rose, does best on a south wall. *Chimonanthus fragrans* should be against every house in the kingdom, but does not grow fast. *Jasminum nudiflorum* flowers all the winter on a south wall. *Clematis montana* is the fastest grower of the genus, and would soon cover a large space, and be in flower early in May, about the same time as the *Glycine*. *Clematis Sieboldii* is a most beautiful climber, which flowers all the summer on a wall, and does better mixed with other climbers to screen the leaves and stems from the sun. *Pernettya* is better than the *St. John's-wort* to cover under trees quickly; but the latter is an excellent undergrowth when once established. It prefers deep, light soil. *Tree box* is the best shrub to plant under large trees.

CANTUA DEFENSANS (*Novice*).—A cool greenhouse is the best place for it in winter, and in the summer it will do better if not much exposed to the full sun. Those who have coddled their plants of it indoors this autumn, instead of planting them out in the open ground as we proposed, have got into a pretty pickle with the red spider; and we predict thus early that it will be difficult to keep it free from this pest indoors from April to October.

CORÆA SCANDENS.—(*Twig*) says, "I have neither frame, pit, nor greenhouse, and from the number of pots I have to preserve in windows, I fear I shall not have room for two beautiful *Coræa scandens*, now against a south wall, and in festoons round a window, in one mass of bloom." We have frames, pits, and greenhouses, and a score of *Coræas*, which we would pit or stage against Mr. Twig's festoons, and we preserve them in a large shed facing the north, with a fire in it. *Coræa scandens* improves

by age, and the old plants require only to be kept from the frost while at rest; no light is necessary. Cut your two plants to ten or twelve feet each, take off the leaves, and train them up behind the window curtains, or in any corner of the sitting-room, or, indeed, in any dry place away from the frost, and do not let the pots get quite dry; no plants are more easy to keep.

GABLE ENDS (B. C.).—Plant the best evergreen climbing Roses against the gable ends in that "cold draught." You will find the names in previous numbers. You may also plant *Coloneaster microphylla*, "which no cold can impair." It makes a fine evergreen clothing to the ends or back of a house, or north wall. The *Pyracantha thorn* (*Crataegus pyracantha*) is another useful thing for your purpose. For the five-foot walls, plant *China Common Roses* and *Ivy*, then bud a selection of *Chinas* on the Rose.

TEKE ONION.—N. S. Hodson, Esq., Bury St. Edmunds, says:—"Should any of the readers of THE COTTAGE GARDENER wish to cultivate this desirable esculent, I shall have pleasure in forwarding bulbs, on receipt of four postage stamps."

CHURNS.—A correspondent says:—"I have used for several years a block tin churn, on which is a plate, with this inscription:—"Registered Metallic Churn. Attwood, Wimbie and Werner, manufacturers, Lewes." It is very simple, makes a large quantity of butter in a very short time, and though in constant use, has needed scarcely any repair in six years. Price according to size, from 25s. to 42s. Can any of our readers furnish us for our correspondent, with a recipe for *French bread*."

BACON CURING.—R. M. will find the following an excellent mode:—"For every 14lbs. of pork, take 1½ oz. of saltpetre, ½ lb. of coarse brown sugar, ½ lb. of common salt, and ½ lb. of bay salt; pulverize them finely, and mix all well together; rub the pork in every part thoroughly with the moisture; heap what remains upon the meat, leave it until the following day, and then rub it in again. On the third day after the pickling commences, pour a pint of strong vinegar to each 14lbs. of pork, and keep this turned and bathed daily with the pickle for a month. It will then be fit for drying."

LIST OF APPLES FOR STANDARDS (R. L. —, Thame).—*Dessert-Ashmead's* Kernel, Kerry Pippin, White Joaneting, Ross's Nonpareil, Adam's Pearmain, Lamb Abbey Pearmain, Golden Reinette, Ribston Pippin. *Kitchen.*—Alfriston, Keswick Codlin, Mank's Codling, Dumelow's Seedling, John Apple, or Northern Greening, and Hawthornden.

COTTAGE GARDENERS' DICTIONARY (A Young Beginner).—You will find it "far more useful for practical gardening purposes, than *Paston's Dictionary*."

WORKING BEER (Malt cum Sugar).—You are quite right in putting the barn into the wort the day this is made, provided you do not do so until the wort is about as warm as new milk. You are also right in tunning the next afternoon, if the beer has worked well. A small tea-cupful of yeast will be enough for twenty-four gallons. Boil the Chamoiles for five minutes.

HARDY FRUIT FOR ESPALIERS (A Constant Reader).—*Dessert Apples*—Pearson's Plate, Kerry Pippin, White Joaneting, Hick's Fancy, Margil, Sturmer Pippin. *Kitchen Apples*—Gravenstein, Hawthornden, Boston Russet. *Dessert Pears*—Aston Town, Beurré Diel, Dunmore,

Easter Beurré. *Stewing Pears*—Catillac, but it must be a standard. *Plums*—*Precoce de Tours*, Smith's Orleans, Greengage, and Golden Drop.

CINERARIA MARITIMA (S. H. H. W.).—Can any of our readers say where this—the Sea-ragwort—can be purchased? Your other question next week.

PRESERVING AND CULTIVATING GINGER (L.).—There is a long recipe for preserving it at page 155 of our last volume (No. 140). The following for cultivating ginger is from *The Cottage Gardeners' Dictionary*:—"Green ginger may be easily cultivated two ways, either in pots, or in a deep pit. If in pots, take the plants, shake them out of the pots when at rest in February, divide them, and pot each piece into a pot six inches across; plunge them, as soon as the heat is temperate, in a bark pit, or a frame heated with dung like a cucumber-bed, the surface being covered with tan deep enough for the pots. As soon as the plants come up, give a small supply of water, gradually increasing the quantity as the plants advance in growth. By August they will be fit to take up and preserve. If a large quantity is required, a deep pit of two or three lights will be necessary, the bottom to be filled with rich soil to the depth of a foot; plant the roots in this soil, and line the pit with hot dung, renewing it as the heat declines. The time for planting in the pit is February or March. Water whilst growing, give air in hot weather, and in September you will have a large supply of fine ginger roots, equal to foreign."

RAMBLING SAILOR.—T. M. W. says, that he finds that this name is applied to *Linaria cymbalaria*, a species of Toad-flax.

SALT AND SOOT (C.).—Fifty bushels of soot, and ten bushels of salt, mixed together, or sown separately, are a good dressing for an acre of land to be planted with potatoes. Sow them over the land just previously to digging it. One hundred weight and a half of *Epsom Salt* (Sulphate of Magnesia) is a good dressing for the same space of ground, but this should be sown over the field when the potatoes are growing, in the spring, about May. *Soot* is composed of Carbon, 371 parts; Salts of Ammonia, 426; Salts of Potash and Soda, 24; Oxide of Iron, 50; Silica, 65; Alumina, 31; Sulphate of Lime, 31; Carbonate of Magnesia, 2.

HIMALAYAN PUMPKIN.—Any one desiring new seeds of this pumpkin will receive a liberal supply if they send their address, on a stamped envelope, with two stamps enclosed, to Mr. D. Farage, County Gaol, Oakham, Rutland.

NEW PLANTS (G. H.).—Your plant, as near as we can judge from the specimen sent, is the *Tecoma Australis*, a native of New South Wales; probably it was not able to flower in the greenhouse for want of root and head room. (*Hester L.*)—We have no doubt your plant is the *Iris Chinensis*, a very beautiful one; you may venture to turn it out in a warm, moist situation, where your strong plants will flower next year. "Should the weather set in very severe, a little protection may be useful or necessary, as plants of it have been killed during some of our very severe winters."

ERROR.—At p. 37, col. 2., line 3 from top, for *Styphelia*, read *Staphelia*.

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WEEKLY CALENDAR.

M D	W D	OCT. 30—NOV. 5, 1851.	WEATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
26	Th	White Poplar leafless.	29.692—29.682	50—36	S.W.	04	51 a. 6	36 a. 4	9 19	6	16 11	303
31	F	Books return to nests.	29.938—29.872	56—37	W.	08	53	35	10 21	3	16 13	304
1	S	ALL SAINTS. Sycamore leafless.	29.985—29.915	60—50	S.W.	07	55	33	11 a 27	8	16 15	305
2	Sun	30 SUNDAY AFTER TRINITY.	29.997—29.926	60—36	S.W.	—	57	31	morning	9	16 17	306
3	M	Plane leaves fall.	30.159—30.037	58—42	S.W.	02	58	29	0 33	10	16 17	307
4	Tu	Ash leafless.	30.067—29.865	56—38	W.	05	VII	27	1 37	11	16 17	308
5	W	GUNPOWDER PLOT, 1605.	30.030—29.960	56—42	S.W.	—	2	25	2 43	12	16 16	309

It would be a very contracted, depreciating, and erroneous estimate of Botany, if any one were to consider it as merely a science, which teaches certain marks whereby one plant may be distinguished from all other plants, and whereby, consequently, the name of that plant may be ascertained. That Botany does teach us such marks, and that the Linnean is a system of such marks more easily learned, and more easily applied than any other to the purpose of plant-detection, is most true, and he would be a very unwise student of Botany who did not make himself master of that system which furnishes him with the best index to the vast volume of vegetable nature; but Botany has higher objects than that. No one possessing eye-sight can have walked through life in the country, without having noticed that there are many groups of plants, as the Grasses, Crowfoots, and Mints, which all composed of kinds generally resembling each other. The common little grass of our gravel walks, the *Poa annua*, differs very much from all the other known grasses, and they all differ, more or less, one from another; yet no one for a moment hesitates in saying they are so much alike that they may be considered as members of one large family. It is so with the Crowfoots, Mints, Orchids, and many others; not in this a useless fact, because it is found that all plants so resembling each other in their outward forms, are similarly alike in their inward qualities. This is a coincidence that pervades all nature; and the cat tribe, from the lion of Africa to the tabby on our hearth-rug, do not more resemble each other in form and nature than do our plant tribes. All the grasses, for example, are nutritious; all the Crowfoots are poisonous; and all the Mints are aromatic; and this coincidence of form and quality is the same whether the member of the tribe is picked in our hedge-rows or within the tropics. To determine by certain coincidences of form the plants to be enrolled in each tribe is of great importance, and to this end Ray, Jussieu, Decandolle, and many others, have directed their greatest efforts. If all plants were as easily discerned as belonging to one family, and as unlike to all others, as those we have named, the task would be easy; but as the vast majority of plants are remarkable for close resemblance to several tribes, the task of grouping and detecting the true and universally applicable rules for such grouping, is, perhaps, the most foiling task that can be undertaken by a mind the most acute at definitions, and the most subtle at distinctions. Yet much has been done, and as all that has been done is useful, and as we purpose to describe and pourtray our British plants according to this, which is called the natural system of classification, we shall to-day give a biographical notice of that admirable character, ANTOINE LAURENT DE JUSSIEU—admirable, because excellent both as a man and as a teacher of high knowledge. He was born at Lyons, in 1748, and, at the age of seventeen, reached Paris to complete his medical studies, but his uncle was fortunately Botanical Demonstrator at the Jardin du Roi, and extricated Jussieu from being lost amid the multitude who are annually prepared for dispensing pills, powders, and small talk to an admiring village circle of ten miles diameter. In five years Jussieu's medical education was completed, or rather beginning, if it be true that medicine is best founded upon practice. It was necessary that he should deliver a thesis before he was admitted to his doctor's degree, and the subject of that thesis—*Is there an Analogy between Animal and Vegetable Vitality*, proclaimed the direction his studies had taken. In 1776, then, he was a physician, and we are told by one of his biographers that, "in the same year he was nominated botanical demonstrator in the Jardin du Roi, as a substitute for Lemonnier, whose duties as chief physician to the king prevented his executing that office in person. Thus at the early age of twenty-two years Jussieu found himself under the necessity of undertaking the duty of teaching students the essential characters of the plants cultivated in the Paris Garden, a task for which experience in details and practical knowledge were required, rather than that general acquaintance with botany which a young man just released from his medical curriculum, might be expected to possess. This obliged him to study one day the subjects to be demonstrated the next, and to occupy himself incessantly with acquiring a correct practical acquaintance with plants. At that time the collection of plants in the Jardin du Roi was arranged according to the method of Tournefort; but shortly afterwards it became necessary to rearrange it. Of this opportunity Jussieu

took advantage; he drew up a memoir upon a new method of arrangement, which was read before the Academy of Sciences, and afterwards carried into effect in the Garden. The idea of this method was undoubtedly taken from a classification of the plants in the Royal Garden of Trianon, executed under the direction of his uncle; but it was different in much of the details, and was prepared without consultation with Bernard de Jussieu, who in fact was at that time old, nearly blind, ill, and incapable of taking part in any mental exertion. Previously to this, young De Jussieu had studied the natural order, Manunculaceae, with so much attention, that he had made it the subject of a communication to the Academy of Sciences, in whose Transactions it was printed. In after-years he used to say that it was the composition of this memoir which had opened his eyes to the real principles of botanical classification, and made him a botanist. It is here that is found the first distinct trace of those clear ideas concerning the relative importance and subordination of characters which the author subsequently applied to the whole vegetable kingdom. In reality there is no natural order of plants altogether so well suited for this purpose as that which happened to be selected.

From this time, that is, from the year 1774 up to 1789, De Jussieu was constantly occupied in demonstrating to his class of botany, and as his new method was thus brought perpetually before him, with all its advantages and disadvantages in practice, he was able to alter and improve it yearly. The distinctions of genera, their mutual relation, the natural sequence of his orders, and, in addition, all that was written by other botanists during this period became so familiar to him, that his son records his having actually commenced his great work, the "*Genera Plantarum*," in 1788, without having prepared more than the commencement of the manuscript; and he adds, that he was seldom, during the printing, above two sheets in advance of the compositors—a very remarkable circumstance, if the extreme attention to clearness and arrangement conspicuous in this work are borne in mind. It is, however, always to be remembered, that in those days botany was not what it now is: Jussieu enumerated only 2700 genera, while one, not of the latest general works, includes between 7000 and 8000.

In 1779, when the "*Genera Plantarum*" was published, the political state of France, which put an end to peaceful occupations, and turned the public from all thoughts of botany, disturbed the tranquil tenor of the course of Jussieu, and compelled him to mingle in the busy scenes of public life. In 1790 he was named member of the municipality of Paris, and in this character was charged with the direction of the hospitals and charities of that city, which he continued to exercise till 1792. In 1793, the Jardin du Roi was re-organized under the new name of Jardin des Plantes; all the persons charged with the duty of public instruction were elevated to the rank of professors, and De Jussieu, who had been previously botanical demonstrator, became professor of rural botany. He afterwards became director and treasurer of the Museum of Natural History, and recommenced, in 1802, his botanical writings, chiefly in the form of memoirs upon his own natural orders of plants. These, amounting in number to fifteen, were continued in the "*Annales du Museum*" till 1820, after which time De Jussieu became deaf to science. He was then seventy-two, with a sight so feeble that it might almost have been called blindness; and he was no longer able to do more than profit by the observations of others. Nevertheless, he employed himself between his eighty-third and eighty-eighth year in dictating a new edition of his "*Introductio in Historiam Plantarum*." This work has been published since his death; it is written in elegant Latin, and is a remarkable proof of the vigour of his intellect, even at this advanced age. He appears to have been much loved by his family, and greatly respected by his friends. His amenity of character was such, that he was never in any one of his writings betrayed into a single word of harshness towards his contemporaries. He died, after a short illness, on the 15th of September, 1836, and left behind him a son, Adrien, his successor in his chair of botany, and the inheritor of the virtue and talents of his father.

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 53.3° and 38.9° respectively. The greatest heat, 67°, occurred on the 30th in 1833, and the lowest cold, 20°, on the 3rd, in 1845. During the period, 89 days were fine, and on 80, rain fell.

We have always been very reluctant to decide imperatively upon the name of a fruit submitted to us for detection, because we felt that, being comparatively without system, Pomology can only be well known by those who have had long experience, not merely in cultivating the varieties usually found in gardens, but with the majority of known varieties. We knew of no authority to confirm our opinions, or remove our doubts, until Mr. Hogg became known to us through

his excellent work on *British Pomology*, and most gladly and gratefully do we avail ourselves of his aid.

The specimens of fruit we receive are numerous, and although of the names of many of them we entertain no doubt, yet there are still more, varying, so much as all do, with soil, aspect, and mode of culture, that we fail to recognise them until better informed not only as to those particulars, but as to others alluded to in the following letter from Mr. Hogg.

This letter, we must premise, was consequent upon our sending to him a water-coloured drawing of a Pear.

"From what I can judge by the sketch you sent me, the pear is the *Bishop's Thumb*. But the sketch is not very characteristic, and is very void of *expression*. There are several particulars which are necessary to be known before deciding with confidence in such a case; viz., the season of maturity, the texture and peculiarities of the flesh, whether buttery, watery, sweet, styptic, aromatic, &c., and, also, the characters of the stalk and eye, which, in the drawing you sent, I am satisfied are not those of the specimen from which it was taken. Still, however, I could almost with safety say that the variety in question is the *Bishop's Thumb*. Its description is as follows:—

"*BISHOP'S THUMB*.—Fruit large, four inches-and-a-quarter long, and two inches-and-a-quarter wide at the broadest part, which is situated towards the eye, at about three-fourths of the length of the fruit; shape, oblong, tapering gradually towards the stalk; skin, yellowish-green, covered with numerous large russetty spots, with a reddish brown tinge next the sun, which is marked with grey dots; eye, small and open, with long, reflex segments, and placed in a slight depression; stalk, an inch long, curved, obliquely attached, without depression, and with a boss, or blister, on one side at its base; flesh, greenish-yellow, juicy and melting, fine, and tender, with a rich, sugary, and vinous flavour. A dessert pear of first-rate quality, ripe in October. The tree is a vigorous grower, hardy, and an abundant bearer. It succeeds well as a standard, and is adapted to almost all soils."—*MS. British Pomology*.

Now, we ask our correspondents' serious attention to the passage we have printed in Italics, for if they send us unripe fruit to identify, they must furnish with it those indicatory particulars.

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.



LILAC-FLOWERED THYRSACANTH (*Thyracanthus lilacinus*).—*Paxton's Flower Garden*, ii. 77.—This genus

was founded by Nees Von Esenbeck, to include some species previously considered *Justicias*. In the spring, the present species flowered in a stove at the garden of the Horticultural Society, but from whence it was introduced cannot now be ascertained; therefore, for the present at least, its origin and biography are lost to us. The genus will stand near *Justicia*, and Dr. Lindley observes that it approaches the *Justicia bracteolata* of Jaquin, which is no doubt the same as *Thyracanthus Lemaireanus*, but differs essentially in the barren stamens being subulate (awl-shaped), and not spatulate (broad at the upper end like a spatula), as if preparing to bear a piece of an anther.

It is a "soft-wooded plant," requiring the same treatment as tropical *Justicias*, *Eranthemums*, and such-like *Acanthads*. The leaves are long and thin, downy and wrinkled, tapering down to a long footstalk; the flowers are in spikes, called thyrses-like panicles, at the end of the branches. The flowers are pale lilac, funnel shaped, inflated, with a four-lobed limb. The upper lip is erect and two lobed; the lower is deeply divided into three bent-back segments. The generic name is derived from *thyrses*, a panicle, a kind of flower-spike, and *akantha*, a spine; referring to the sharp points of the bracts, or flower envelopes. It belongs to the Natural Order *Acanthads* (Acanthaceæ), and in the system of Linnæus to the first Order of the second class, *Diandria Monogynia*.

How closely this species is allied to the *Justicias* is evidenced by its being known in gardens as *Justicia lilacina*; and the difficulty of determining the genus of plants in this group is told by the fact that *Thyracanthus Lemaireanus* is called by other botanists a *Justicia*, an *Aphelandra*, and a *Salpingantha*. B. J.

THE FRUIT-GARDEN.

PRUNING.—We will now commence, and continue in detail, the promised remarks on "*Rest-pruning*," applying them to each of our fruits; and it may here be observed, that the order in which they will be handled may at once serve, also, to point to the order in which they may be pruned. In addition, the earliest and latest periods of pruning permissible to each will be stated. We cannot promise ourselves a consecutive course in this affair: other matters will, perhaps, demand attention occasionally; but the subject will be resumed until completed in good time.

THE RED CURRANT: *October to March*.—The first year that the cuttings are put out, the Red Currant commonly produces three or four weakly-developed shoots, of some three or four inches in length. Two or three of the principal of these, placed equidistant, must be selected, and these may have a few of the imperfect points removed, in order to compel, during the succeeding summer, the development of several shoots, from which, at the succeeding rest-pruning, those for the future head may be selected.

On the first formation of the head, of course much of the future symmetry of the bush depends; and well-formed bushes are ornamental as well as useful, especially in small gardens, or near walks. The circular form is, doubtless, more convenient than any other, and an approximation to it is generally the practice; still the forms we generally find in gardens are but a

rude approach to it; and amateurs, and those with small gardens, would do well, in all cases of circular training, to place a strong hoop of the desired diameter and at the desired height to establish the first formation of the bush or tree. This will insure symmetry, as well as facilitate the ordinary training processes.

A strong hoop, of a yard in diameter, will be found exceedingly appropriate; it need not, however, be more than a yard, as it is by far the best to have no interior shoots; but to leave the middle of the bush entirely open. Indeed, if this plan be *strictly* adhered to, thirty inches diameter will, doubtless, be amply sufficient, as it is needless to waste space which is otherwise so valuable. Three strong stakes may be driven deeply in the ground, at three equidistant points in the circumference of the circle, the top of each being about fifteen inches from the ground, and to the points of these the hoop must be firmly attached by means of copper wire. Those who wish to be very *particular* may choose stakes a foot (or more) longer still, so as to carry another hoop about a foot above the first hoop; and, indeed, this principle may be carried to any necessary extent if requisite. The stakes driven in the ground should, if possible, be good oak; and as for the hoops, we should choose them of thick wire rods; for although rust is prejudicial in degree to most fruit-trees, it could scarcely occur to any serious extent with such slender material. Much care should be exercised in putting down the hoops; the ground must not be trod into a puddled state, and the operation should be performed when the soil is tolerably dry. The bush, of course, will be in the centre, either previously or introduced subsequently; and now some intermediate sticks must be used in a temporary way, to lead the young shoots to the hoop. These things will readily suggest themselves, and we need say little more about the hoop affair, but proceed to talk of distance apart, &c., &c.

We train them nearly a foot apart, and get very abundant crops; and they certainly ought not to be nearer than nine inches on any account. The learner must here understand that these leading shoots are not ephemeral or immaterial matters: they are to form the fabric of the tree as long as it remains, and are a very different affair from the mere spray produced from their sides. As a maxim, we say the leading shoots should be so far apart as that the *summer spray*, when pinched or pruned back in June, does not meet. This spray we cut back to about four or five inches early in June; and this five inches on each side of two adjoining leaders gives ten inches as the distance from leader to leader. As for the spray-shoots crossing each other previous to the "Growth pruning," that does not signify: it will do little harm.

Now the young tree before described, after becoming established in the nursery, and having undergone a second "*Rest-pruning*" in that position, will, in the second year, have produced several shoots of some eight to ten inches long, and in the month of October will be a fair subject for removal to a permanent situation. Of course, whether this take place before the hoops are placed, or after, or where there be hoops or no, is a thing dependent on circumstances. We have suggested hoop-training to those who can find time. Of course the soil will have been studied; this, however, by the way; our present business is with the pruning. Now, if these young bushes are moved with care in the third week of October, they will scarcely miss their moving; they will have nice clods of earth adhering to them; and any roots that are wounded will instantly commence what our physiologists term the granular process; that is to say, if they do not root directly they will be in a position to root betimes in the spring. And this brings us to a point to which attention is requisite; viz., not to prune too severely at this time. Practice—grey-haired practice,

or, rather, prescription—may oppose us, but we fear it not in such a position. The fact is, shoots of some length are necessary in this stage; and, moreover, the root-pruning involved in removal induces a sturdy habit, and the production of spurs rather than elongation during the next year. This we have proved in hundreds of cases within the last twenty years, during which period we have constantly, in one place or another, adverted to root-pruning, and the ever-baffling and prodigal application of stimulants to fruit-trees, ending only in the production of shoots, and causing too much of man's meddling to be either natural or profitable. And here we hope to be pardoned a simile on our own behalf. We think we have seen in some Joe Miller-sort-of-book an anecdote about one Dennis (we think that is the name). Poor Dennis, it would seem, had taken out a patent for the manufacture of thunder for the play-house, and being in some contraband theatre one evening, he heard all of a sudden an imitation of his superior article—so good a one, that he roared out, "*By Gad, that's my thunder.*" And we, although it may appear egotistic, have been sometimes amused, sometimes annoyed, to read articles from gentlemen about root-pruning, shallow and unmanured soils, station, planting, summer dressings, &c., who evidently did not care whose thunder they had, provided they could make a "dreadful pother o'er our heads." But now to return to our deserted track. Little pruning, then, say we, at the period alluded to; moreover, if they are to be hoop-trained the very bending will cause them to develop spurs.

A selection being made of the proper shoots in proper positions, they must be carried along conducting sticks to the hoop, and having been tethered tolerably well at the bottom, may be pruned just as much as will leave a point sticking above the hoops. During the next summer it will be found that the growing shoots will rise perpendicularly with little assistance.

And now for the pruning of Red Currants in general (whether by hoop-training or otherwise) when they are well established. As before recommended, the leaders should have a portion of their points cut away at every rest-pruning, in order to cause them to develop side-spurs. If this is not done, and the trees are growing freely, one-half the length of the young leading shoots will be bare of spurs, and thus in such bushes may be seen patches of currants, and bare portions alternately, up the main stems. The object in shortening them is to cause the spurs to be developed in a continuous way; and thus more fruit is obtained in a given space, and room is economised. Nevertheless, if the leaders have been summer-pruned, there may be no occasion for *rest* shortening. Be that as it may, we would never leave above nine inches in length on any account; about seven, indeed, is our average.

And now to the side-pruning, technically called "*spurring-in.*" It is well known to our readers that healthy currant bushes, especially of the red class, develop a host of watery side-shoots, proceeding, indeed, in many instances, from the very spur-knots. This is as it ought to be, notwithstanding their rude appearance, and their coarse and smothering character in early summer.

The business assigned to these is, doubtless, to elaborate matter of an accretive character for the due encouragement of the group of spurs which otherwise would consume more of the accretive material than they create, and thereby draw too heavily on the system of the tree. They are thus, as it were, rendered *self-supporting*; and although we cannot speak from experience, yet we have little doubt that if any one would persist in disbudding all these shoots the moment they appear, the spurs at their base would soon be troubled with a sort of vegetable atrophy, and dwindle away in a very short period.

Good rest-pruners, therefore, cut all these back to

within about half-an-inch of their base; which gives the spring-blossom plenty of room for growth, and at the same time leaves an eye or two of *wood-buds*, which in a few weeks produce the same character of spray as their progenitor; thus a permanent provision is made for the stability and long endurance of the spurs. Thus we see the first object with the young bush is, by pruning, selection, and careful training, to procure and establish a lot of *leaders* at proper distances, and thenceforward to carry them up as nearly perpendicular as possible, and by shortening, to compel them to furnish the whole stem with spurs, cutting annually back the watery side-spray just alluded to.

ROBERT ERRINGTON.

THE FLOWER-GARDEN.

ABOUT this time last year I made up my mind for an experiment on *Perpetual Roses* upon a large scale. It was founded on an old practice which I had often witnessed of training-down Moss Roses upon moss, a layer of this being placed all over the surface of the bed by way of mulching late in the spring. The Moss Roses did beautifully this way; the shoots were spread flat on the moss, and the side-shoots from them flowered at different heights from the moss according to their lengths, but the longest of them was much shorter than those from bushes not trained at all; and it is always so with bushes, or even trees, when their branches are trained down, or sideways, in a horizontal position. Now when we train a Pear-tree that way, we get flowers and fruit from short spurs along the main branches; but if the tree is at all vigorous a great number of fresh shoots will grow from the spurs, which we call *breast-wood*; and we all know how jealous Mr. Errington is about the use and abuse of his *breast-wood*. He never allows *breast-wood* at all; he nips off the points as fast as they get to a certain length, generally. Applying this principle to the trained shoots of the *Moss Roses*, those who treated them this way soon found themselves in a difficulty, and many experiments were tried to get over this difficulty: some tried to prune these Moss Roses as if they were Black Currants or Red Currants, Peach-trees, and all the other trees and bushes that used to be regularly pruned at that time; but all would not do; the Roses would not blow well the second year, and the third year they did worse; all the trained shoots turned as dry and old-looking as if they had been made many years before, and a profusion of suckers, like shoots, would spring up from the collar of the plants, or from the bottom of the main shoots where they had been bent down for training, and the upshot of the system was, that it condemned itself; no one could do any good with it after the first season, and many of us gardeners thought it died a natural death, like many more fanciful things which we tried from time to time and failed in. THE COTTAGE GARDENER had not been long in circulation, however, before inquiries began to drop in about the system of training-down Roses, and since I was turned over to the flower-garden department I set my face resolutely against the plan. I had always some cold water by me to cool the ardour of those who wanted to train down their Roses, whether upon moss or on the bare surface of the beds, and if I had put any value on being thought a consistent writer I must have gone on in my opposition to this way of growing Roses to the end of the chapter; but they say that consistency is only another name for obstinacy; at any rate, I began to think a good deal about the old way of training Roses. I recollected having heard some gardeners maintain that the plan was good and easy to be carried out, but then, from what I had seen myself, and had heard others as resolutely condemn, I put all this down on the side of *consistency*; but no matter how strong any of us hold

an opinion, on whatever subject it may be, as soon as it is called in question by our own doubts about it, or by the surmises of other people, we begin to lose faith in it immediately, whether we choose to own it or not; but to own a fault, or a mistake, is by far the best way in the long run, and my experiment on the Roses—part of which I have told about already—has clearly proved that I was in the wrong; that all were wrong who doubted the good effects of training-down Roses; and not only that, but this experiment brought out a *new fact*, of which I am now as confident as I am of writing this letter.

The fact is, that *none of the autumnal or Hybrid Perpetual Roses should be pruned at all, according to our ideas of pruning*. We never apply the term pruning to our way of dressing Raspberry-bushes every year; we merely select so many of the strongest canes on a stool to fruit next year, and all the little ones, with the canes which bore the last crop, we cut clean out from the bottom; and if that is pruning, why, to lop off a bough which hangs over the road must be pruning also. Now these Perpetual Roses do better thus treated, like so many Raspberry plants, than by any other way hitherto in use, and equally so whether the shoots be trained down or horizontally, or merely left just in the way they took to grow last summer. I brought down the issue of this experiment already to the end of the first crop of bloom last June, and I then said that I would cut out the branches of some that had done flowering to see if that would do as well, or better, than letting them remain to the end of the season. Four plants of *Madame Laffay*, the best known representative of the Hybrid Perpetuals, and two of the *Crimson Perpetuals*, or *Rose du Roi*, as that of the Perpetual Damask Roses, were thus experimented on as they were going out of flower, and before the second growth began. They were not cut very close, but to this day they show that they were cut at the wrong time; in short, they ought not to have been pruned till the end of August, or sometime later, when the second growth was nearly finished, or better still, they might have been left to the end of October, and then, instead of pruning the side branches, all the last year's wood should be cut out, and this summer's growth laid in at full length. The easiest way for a beginner to mind this way of managing Perpetual Roses is to compare them to so many Raspberry-bushes, and to cut them exactly like them. The wood of one year is to be left at full length that winter, and at the next dressing time, after that wood is fruited, in the case of the Raspberry, and flowered in that of the Rose, it is to be cut clean away down to where the strong shoots for another season were grown from. The similarity of the treatment for the Raspberry and the Perpetual Rose goes still closer. When the Raspberry canes are selected and tied to a stake, or placed in any other way, it is customary to cut off the very points of them, more for the look of the thing than for any good it does for the next crop. The same is done, and must be done, in most cases, with the Perpetual Rose. Let us take *Madame Laffay*, for instance, and say that a good plant of it was trained in some way or other last winter, the shoots laid in at their full length, or nearly so; that these shoots made small side-shoots along their whole length last May, and that these small shoots flowered most profusely last June and to the middle of July; the young, second, or Midsummer shoots, which arose from the bottom of the trained ones, are now from eighteen inches to four feet or more in length, and in bloom at the top. By the time the bloom is over for this year, the old shoots that were trained down last winter are ready to be cut out altogether, and the young ones just going out of bloom, are ready and fit to be laid down, or sideways, in their stead, and the very tops which bore the flowers, but the other must be dressed a

little if only to clear away the remains of the flower-stalks; so that the similarity is complete between the Raspberry and the Perpetual Rose under this system. Then, as to training, any conceivable way will do for either; but here comes a difference at last. The Raspberry will do very well standing upright, but the Rose will not, at least not except in very careful hands. A man or woman who can so manage an old Peach-tree as to have the young wood at the bottom of the wall as plentiful and nearly as vigorous as at the top, need not fear of getting *Madame Laffay*, and the like of it, to blossom without any pruning more than is stated above. All this is perfectly proved in some hundreds of specimens in the reserve rosary here this season, and there is no question at all about the matter in the minds of those who have seen the good effects of it, and the plan is to be continued from year to year. There are hundreds of suitable places for a row of vigorous Roses—a hedge, espalier, low wall, or what not, and this is the best way to treat the perpetual sorts in such places. A low Rose-hedge, along the side of a walk, would look very well in many situations; the top of the hedge need not be more than a foot from the ground when it is trained, although the shoots may have been four feet long before they are trained down in this hedge-fashion. If good strong plants of the free-growing kinds were planted at four feet apart in a row they could easily be brought to this hedge-fashion, or the shoots might be formed into little arches, as those of the Raspberry are sometimes trained. Or if we propose three rows of Roses to be planted along the side of a straight walk, the first row next the gravel might stand eighteen inches from it, and the plants be trained quite low, after the old fashion of training on mossed-beds, the shoots trained to the right and left; the second row might be trained in low arches, not more than two feet high in the centre of the arches, and two feet or thirty inches from the first row; the third row might be an espalier, say from four to five feet high. The espalier row need not be more than two feet from the centre row, if one was tied to a limited space; all the plants in these rows might be planted at two feet apart in the row so as to get the whole effect intended; before the end of the first season, and after a few years, every other plant might be removed.

One more suggestion. All these Roses should be of the free-growing *Hybrid Perpetuals*, and every one of them, by all means, to be on *their own roots*, for this reason, that if worked plants are used, and their shoots trained very low, as is proposed for the first row, it would aggravate the disposition of the wild stocks to throw up numerous suckers; besides, these Roses will grow very well in many kinds of soil in which the Dog Rose stocks would not feel at home; and the Manetti Rose, which is the best to use on very poor, light soil, would neither increase or diminish the strength of such Perpetuals as I contemplate. Altogether, I think it is simply a foolish plan to bud these kinds on low stocks at all for any purpose or soil whatsoever. It may be that some of them would come sooner to a marketable size if worked on the Dog Rose; but as a set-off to that, let every one put in a hundred cuttings next week—which, by the way, is a very good time—of Hybrid Perpetuals, and another hundred of the Manetti Rose, or the Boursault, or any other Rose used for stocks, and the Perpetuals on their own roots will come to market twelve months before the same kinds if budded on the said cuttings as soon as they were fit, let alone the time and trouble in budding, tying, &c., &c.

About the end of October, or early in November, is as good a time as any, if not the best time, to put in cuttings of all the strong Hybrid Perpetuals, and of all the Climbing Roses. Let the cuttings be from four to six inches long, and if slipped from the old wood, so as to

carry a head with them, all the better; and let only a couple of inches of the cuttings be left out of the ground, with a little sand at the bottom, and the soil pressed hard to them, in some shady place, most of them will root and make fine plants by next autumn. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

SCARLET GERANIUMS: PRESERVING IN WINTER.—I hardly feel sure if I am right in alluding thus prominently to this subject here. Last season it received a due share of attention, and Mr. Beaton has not forgotten it during the present; many of our friends, however, by their enquiries, seem to be of his opinion, that in the multitude of counsellors there is safety—while so differently constituted are we, that others may be apt to exclaim: “well now, whose opinion am I to follow, the very diversity puzzles and confounds me.” For all new beginners there is much truth in the latter statement. I well recollect, when first poring over *Loudon's Encyclopædia of Gardening*, how bamboozled I was in having the practice of some half-dozen of the first gardeners presented for my choice, and the relief I felt in turning quietly to the one master-mind of an Abercrombie, or a Nicol. I would not wish, by any means, to contribute to a similar perplexity, though I would wish every reader, however few his plants, to have the knowledge of that identical practice presented, that was most suitable for his individual circumstances.

It may be a satisfaction to some few, to state, that every mode that has been mentioned in this work for preserving the plants during the winter, has been tried by me with a fair portion of success, with the exception of attempting to preserve them during the winter in the beds in which they grew out-of-doors, though I have no doubt that could be done, if a *waterproofed* covering was provided. In my case, without that covering, the plants *saved*, and they were scarcely a tithe, though moved a time or two in spring, had always a disposition to be *leafy*, and to *bloom late*. For our window and balcony friends, no mode, that I have tried, is equal to preserving the plants in the pots, boxes and vases, in which they grew—getting the shoots well-hardened before winter—removing the soft parts, and keeping them in a dry and dormant state, until they begin to bud by the returning warmth of spring. The only disadvantage I have felt from this mode of the plants remaining for several years in the same place, is, that the blooms, though numerous, are apt to be small, from the exhausted nature of the soil, but after the flower-buds appear, this is easily remedied by rich top dressing. The great advantage of this Harry More system, is, that such plants will survive the winter far better and easier, in haylofts, sheds, &c., than any plants taken up out of the ground in similar places, whatever be the amount of previous preparation. But here are a number of friends, who object to the whole system of thus preparing plants, and so far disfiguring the beds, so many weeks before it is necessary to remove them—who duly chronicle, with the zest of an enthusiast, the late period, that with the aid of a mat now and then, they have been able, from their little plot and vases, to surprise a friend with a bunch of flowers—who will tell you, that they have no place in which to store their vases and baskets, and still less shed room, in which to put the plants from these little beds and vases, and that the whole space they can command is a small pony stable. In addition to all this, they decidedly object to have their vases and baskets out of sight during the winter, when they are so ornamental in themselves, and may easily be made to hold some hardy plants; but, in compliance with what they found in *THE COTTAGE GARDENER*, they have got a

nice little brick pit unheated, and from that, and the Welch pony's manure, they must contrive to save as much as possible of their plants for a future year; not only of these in the baskets, but also a portion of these in the buds, because these old plants *do bloom so much more profusely than young ones*; and then they say, the question we want you to answer, is, how are we to proceed, in order to succeed the best, and yet allow the plants to remain *untouched where they are for the longest period compatible with safety*? Why this is better and better still. Few of us would trouble ourselves about keeping old geranium plants, lifted out of the ground in sheds, provided we had nice brick pits in which to stow them. Moreover, of all the plans, next to that of preserving plants in the receptacles in which they grew, the taking up old plants, and keeping them in small compass in pits, covered with glass, has been with us the most successful; and a good many dozen of such plants may thus be preserved in a single light, taking up far less room and less attention than would be requisite for young plants struck during the end of summer. But, lest we forget, let us first allude to the somewhat more stunted plants growing in boxes and vases: the first thing necessary for their preservation is dryness in winter, and this must be secured in the pit. That done, the plants may be turned out of their receptacles, either in one, or several pieces, and packed with a little dry earth as closely as possible; and here, with plenty of air given, and protected from frost, they will want little more attention until they may go back again to their old quarters in April or the beginning of May. With plants growing in the small flower-plots, to ensure success a few preliminaries should be attended to.

1st. As you object to cutting away *part* of the stems, and as it is likely that these plants will stand with slight protection at times, six weeks or more, longer, lose no time in going over the beds, and pulling off all the lower leaves, which will not interfere with the surface-outline, and yet will let the air percolate freely among the shoots.

2ndly. As it is seldom (even without protection) that the plants are greatly injured by the first night's frost that comes, and as even the leaves left at the top of the shoots will so far protect the shoots from a slight frost, little more will be necessary, until the icy king has blackened the flowers and tender leaves. Then, as the plants no longer constitute an object of beauty, the sooner they are moved the better, unless there is a decided appearance of dry, mild weather. But to make sure, no time should be lost; and you may as well proceed thus: prune off all the softer parts of the stems, leaving a couple of inches, and onwards at times to a foot, according as you find the stems *firm* or not; removing, at the same time, any leaves left. Then with a fork lift all the plants, and allow the most of the earth to fall from them, pruning and shortening any very long and straggling roots.

3rdly. As your object is merely to *preserve* these plants in winter, not to *grow* them, and as your chief reliance is upon the vital energies stored up in the succulent stems and roots, a *dry position* is indispensable; before the winter is over you will get more moisture, in all likelihood, than you will require; and, therefore, moisture, in every shape, must be discouraged, except in two or three inches of earth, a little moist, packed in among the roots. The roots and stems (the roots in the earth, of course) are packed in rows, ding-dong, as thick as possible; but before doing so, all the cut-ends are dipped in a pot of powdered lime, which acts alike as a preventive to bleeding and damping. After being thus packed, two or three inches of very dry earth, with a little lime in it, are thrown in amongst them, but no watering during winter will be necessary, unless in continued sunny weather, when it may be advisable to *dust* the

stems in the middle of the day, as finely as possible, with water just to prevent evaporation. By removing a dead end now and then, and sprinkling over with lime and dry earth, by giving plenty of air whenever suitable, and protecting alike from frost and damp, you will have a complete thicket of straggling shoots by April, by which time it will be necessary to plant them more thinly into temporary beds, where you can easily protect them, or, what is better, *pot* them singly, and protect them the best way you can until the first two days of May have come; I have no objection to their being turned out in April, provided the weather is mild, and they are not forgotten. But successful as this mode is in these circumstances, it is not so much so as the following:

4thly. Which will, however, be only within the reach of those who have the pony or other means of obtaining fermenting material, such as dung and leaves. Whatever it be, this should be thrown together and sweetened, but not exhausted; in fact, instead of being *sweet* and *moist* it should be *sweet* and *dryish*. Continue to have a nice little heap of this reserved before taking-up time; when that arrives, place from twelve to fifteen inches thick of this hot, dryish dung in the bottom of your pit, make it pretty firm; on this place a few inches of roughish soil, and then a couple of inches of finer,—neither wet nor dry, in which to pack your plants, then cover with dry as mentioned above. The use of this dung is two-fold: it is not absolutely damp in itself, and by heating slightly it will dry itself more before the gloomiest days come, while it will raise the plants all the farther above the ground-level, and thus so far free them from damp; secondly, the increase thus given to the heat radiating from the earth encourages at once the protrusion of fresh roots, so that long before the buds on the stems break, the main roots are white with young spongioles, the action of which keeps the stems plump and green, and allows of their being brought forward at an early stage if such should be necessary. In fact, where means are present, almost every plant might be made into a specimen. *When* I have adopted this latter plan I do not think I have lost one per cent.

But here whispers a reader—"I cannot, for the life of me, see what you are after, unless presenting an excuse and assistance for lazy procrastination. All the old Geraniums I wanted, and the young ones struck in a border in July, are potted and rooted long ago; and—and—" &c. Well, I cannot help it now. The procrastinator with a friendly lift, may be made an active, foreseeing individual, that otherwise would have remained a procrastinator *all* his life. But even this late-in-the-day-season system has its advantages, which at least should be heard before condemned as unworthy of notice.

1. There is no breaking the uniform outline of a bed by pricking out plants here and there, or even removing part of the stems where the general appearance of the garden is still beautiful, as, upon the whole, it still is.

2. There is a saving of pots; and this, where many are wanted, and assistants must be employed, and crows are needed, do what you will, is a *matter of moment*; they *do melt away* so. Suppose you do pot in March or April, the pots containing Chrysanthemums, bulbs, Strawberries, &c., will be *empty* then.

3. There will be a saving of labour. Potting early pre-supposes shading and watering; potting late, if inferring less of these, still leaves a contingency for failures after potting. Every pot thus emptied on the rubbish-heap testifies to so much lost labour. In potting plants from such a pit in March or April there need not be a future failure; all that is wanted is closeness and shade from bright sunshine for a few days, and then the usual routine for plants potted all the winter.

4. There will be a *saving of space* during those months when space under glass is most valuable. Pot in as small pots as you will, and pack them as close as you please, no squeezing of them will enable you to get anything like the number of plants in a light, that you may safely cram in without potting.

5. This planting under a light, whether transplanted or potted afterwards, is *superior* to any mode of planting or turning in by the heels in mere sheds, &c., however comfortable, as growth is more early, or, at least, more sturdy, the flowering process is sooner brought into action, and less disposition for large foliage, though receiving similar treatment. With the latter, indeed, whether for vases, or beds, or pot plants, I never could get them at all to my mind, *plant when I would*, without having previously potted them, and given them a lift in April under glass, calico covering, or the protection of a hurdle when cold. That is no reason why others should not succeed better.

The mode pointed out now is not for a moment thought to be the *best*; but where space is limited, and in the particular circumstances referred to, it is not the *worst*.

R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC STOVE PLANTS.

EUPHORBIA.—A genus of plants, the greater part of which are uninteresting weeds; natives of various parts of the world. Many of them are curious, distorted objects, with fleshy stems and succulent leaves, scarcely worth growing except in botanical collections, and as matters of curiosity. They are all remarkable for yielding, when cut or wounded, a milky acrid juice, which possesses considerable medicinal powers. It is, however, not with such matters that we intend to trouble our readers on this occasion. Our intention in writing about stove plants, is to draw attention only to objects of floral beauty. The *Spurgeworts* have three species amongst them that are, when well grown, really handsome, showy, and attractive, and continue a long time in beauty.

EUPHORBIA JACQUINIFOLIA (Jacquin's E.); S. America.—A tall, slender-growing shrub, with ovate foliage and bright scarlet flowers, which are produced thickly in two rows on each side of the drooping stems, standing out above the foliage. Though each flower is individually small, yet, by being numerous and of so bright a colour, they are very showy. As flowers for the bouquet there are none to surpass them, and as the season of blooming happens in winter, they are the more acceptable. Good plants may be had for 2s. 6d. each.

EUPHORBIA PUNICEA (Scarlet E.); Jamaica.—This is a handsome-growing plant, independent of the beauty of its flowers. The foliage is of a peculiar light green, and is thickly set on beautiful light-coloured stems. The flowers are small, but their beauty consists in bright rich scarlet bracts. This plant has been cultivated in this country for more than a century, but is comparatively unknown. It is, however, worthy of general cultivation.

EUPHORBIA SPLENDENS (Showy E.); Madagascar.—A prickly, upright, branchy shrub, of great beauty. The flowers are produced on short footstalks, sometimes in pairs, generally in fours, but sometimes in as many as eight on a stem. They are of a pleasing colour, between a rose and a scarlet. The colour is much heightened by being placed in the full light of the sun, and as near the glass as possible. A showy handsome plant. 2s. 6d.

Culture: Propagation.—By cuttings. The best season for propagating these plants is about the month of March, but they will succeed through most of the summer, though there is some danger, if the cuttings are put

in late, of their damping off in the dark season of autumn and winter. The best cuttings are made from the young shoots, provided they have a portion of a rather woody stem at the base of each cutting. Take them off and lay them to dry for a day or two previous to planting; the ends will then cease bleeding, and become hardened at the base. Plant them thickly round the edge of 5-inch pots, in very sandy loam, with a coating of pure white sand on the surface. Place them in a warm part of the stove, and cover them with a hand-glass, giving very little water. Lift off the hand-glass every morning for an hour or two, which will prevent their damping off, as they otherwise would be liable to do on account of their succulent nature; they will need no shade excepting in the very hottest part of summer, in the middle of the day. As soon as they are rooted, pot them off immediately.

E. punicea is the most difficult to strike—perhaps not more than one out of five will succeed. It sometimes produces a pod of seed, and advantage must be taken of that whenever it takes place. Sow the seed in spring, in the same kind of soil, finely sifted on the surface, and pot off the seedlings, as soon as they can be handled, into very small pots, and treat them afterwards exactly similar to the cuttings.

Soil.—The compost suitable for these beautiful *Euphorbias* consists of loam, peat, and leaf-mould, in equal parts, with a large admixture of coarse sand:—a small quantity of old lime rubbish; the coarse parts sifted out of it will be advantageous to add to the compost, but it is not absolutely necessary.

Summer Culture.—*E. Jacquiniflora* requires to be severely stopped, in order to form anything like a tolerably formed plant. Perhaps the best way is to plant four or five plants in one pot, six or eight inches wide. We have seen plants so treated look very handsome when in bloom. In the Sheffield Botanic Garden, there was, some years ago, a plant of this kind trained up, with a single stem, to perhaps 3½ feet high; it was stopped there, and branched out freely. The branches were trained, umbrella wise, and formed as handsome an object of floricultural beauty, when in bloom, as was ever seen. This mode is worthy of a trial. During summer the whole of these three plants require a moderate supply of water, on account of their succulent habit. They must be kept constantly in the stove. Re-pot in early spring, and top-dress in the autumn. Drain well at the time of potting.

Winter treatment.—As might be anticipated, very small supplies of water are requisite. Cut down *E. Jacquiniflora* as soon as it has done blooming. This will cause it to branch out more freely, and keep it within bounds. The other two do not need this operation.

T. APPLEBY.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS.

AFTER endeavouring for twenty years to establish a pure taste in floriculture, by laying down certain points which are necessary in perfect specimens, and so far succeeding as to obtain the general consent as to their propriety, it would almost seem a work of supererogation to enforce the practical application of rules so universally admitted to be good; but, nevertheless, it is necessary, because these rules are resisted by a class whose interests they are erroneously supposed to affect unfavourably. When we laid down the points which we called "the properties of flowers and plants," there were no rules by which a really good flower could be recognised. Florists had different tastes; one admired a large coarse variety, another striking colours, without caring for form or size; a third wanted particular mark-

ings; but all pretended to admire whatever they raised—whatever they had most of to sell. It was, therefore, natural to expect that any set points, if adhered to, would throw many varieties into the shade; whatever was said to be perfect, would render all that fell very short, worthless. The great struggle, therefore, against "The Properties of Flowers and Plants," was made by dealers; because, although the principles laid down enhanced the value of those varieties which possessed them, a great number which did not possess them were a dead letter. But the publication of these principles among amateur gardeners, enabled a lady or gentleman to choose for themselves. They could tell as well as the dealer whether a new flower was good or bad, and from that time did floriculture progress. The raisers of seedlings produce new varieties; and when the test is applied strictly to these, very few are worthy to be added to our collections. This does not suit the dealer; consequently, there is a constant fight, as it were, against the application of the rules on the part of those who sell, and a determination to uphold them on the part of those who buy, with these exceptions; some buyers, or amateurs, are so mixed up with dealers, as to induce them to do as dealers do. Hence, we find amateurs judging the flowers of dealers favourably, and *vice versa*; so that hundreds of novelties, so called, without the least pretension to value, are sent out every year, not only with the recommendation of the seller, but also with certificates of excellence, given at societies where the dealer's influence prevails. THE COTTAGE GARDENER will check this evil among thinking men; but the constant struggle to lower the standard of merit, by adopting coarse flowers, and by placing the showers according to the size of the blooms they produce, instead of according to the quality, is persevered in by some florists, and all under their influence. But it becomes necessary to counteract this vulgar taste, and it can only be done by amateurs, aided by the few professional florists who take a pride in the quality of their productions. How, then, should they act? First, they should, in spite of the taste for large coarse flowers, put up such as are conformable, as nearly as possible, to "the properties" laid down; secondly, they should promote the selection of judges who will carry out the pure taste by giving prizes to those the nearest perfection in all "the properties," and never give it to size, unless flowers are equal in all other respects; for the same variety of anything, that when grown moderately, is *fine*, will, when grown large, be *coarse*, and flowers that are naturally large are always proportionably coarse. Let us, then, hear no more of flowers being too small, and, above all things, let judges at floral shows look favourably at compactness, doubleness, symmetry, form, thickness of petal, smoothness of edge, circular instead of rosette, or starry, outline, and on no account let size beat unless in all the other respects equal.

Among the very numerous packets of flowers we are now receiving daily, too many are beneath criticism, and our numerous correspondents must conclude that we have no favourable notice to give; because a column of rejected subjects is, by no means, an agreeable article in a limited work. Some we make the subject of private communications, but if there be any promise, any hope, we take a more public notice.

Blooms of *Campanula ridalli* are no longer a novelty. In THE COTTAGE GARDENER we have already noticed the plant in a former number, and we hear that there are seeds in the country. The plant is to all appearance hardy, and a perennial, but makes a good potting subject.

HOLLYHOCKS (*W. H.*).—*Vanguard*, a splendid centre; the guard-petal larger than we like, but thick, smooth, and well formed, with some little puckering, but, with all its faults, a good flower. *Princess Royal*, a lovely rose, centre splendid, guard-petals a good size, but not

so thick as we like; nevertheless, very beautiful altogether. Both these flowers have centres that have richness, thickness, and symmetry in their form, and they may be grown in good collections with advantage.

FLORISTS' FLOWERS CULTURE.

THE *RANUNCULUS*.—*Planting*.—"There is a time to plant and a time to take up that which was planted." This is a rule as old as the days of Solomon the Wise King of Israel, and it is a rule that applies especially to plants with bulbous or tuberous roots—and to none more so than the *ranunculus*, for, if the roots of this plant are left in the ground in this country, they soon deteriorate, and generally perish. Perhaps, in the warm soil of Asia, of which it is a native, it may bear to be left longer in the soil undisturbed, but as we have only to do with our own climate, we must treat our hardy plants to suit it. The season for planting the best kinds of *ranunculus* is in the early spring, as soon as the most severe frosts have passed away, and the ground has become tolerably dry. The beds of course we suppose to have been duly prepared, as directed in our last paper on the subject. Let two or three dry days pass over sometime about the end of February, or the first week in March. Then rake the surface of the bed the morning of the day previous to the one fixed upon for planting. This will cause it to dry much more than if it were left as it is. Look over the stock of roots, and prepare, if not already done, numbers for each variety, commencing of course with No. 1. Some recommend steeping the roots for twelve hours in water before planting, but we think this not necessary, except the planting season has been for some cause or other put off till the middle of April; then it may be useful; but if they are planted in the right time, there is moisture enough in the ground to cause them to swell and grow. Supposing then, that the weather is propitious, and all things properly prepared and arranged, bring out early some fine morning, as near the time as possible, the roots and tallies: commence by drawing, with a triangular-shaped hoe, a drill across the end of the bed, about 1½ in. deep; do not exceed that; if deeper, the roots will be weakened the succeeding year, by forming themselves on a kind of stem, nearer the surface; and if shallower, the plants are more liable to be struck with drought, should a dry season succeed. The drill being drawn the right depth, plant the whole of No. 1, and press each bulb, or tuber, slightly down into the ground; plant them, if large, four inches apart in the row—if small, three-and-a-half inches will be a sufficient distance. Finish the first row, and if it holds all No. 1, place the tally, or number, facing the row of plants. If one row across the bed will not contain the whole of the first variety, draw a second drill five inches from the first, and place the tally at the end of the variety, whether in the middle of the bed or nearer the side. Be very particular about this point, and make the tally firm in the ground, so that it may not be easily displaced, and lead in consequence to confusion. As soon as the first kind are all planted, cover the crown of each tuber with fine sand. This will cause the tubers, when they are taken up in July, to come out of the ground quite clean, and in good condition for keeping. (If, however, there is any difficulty in obtaining the sand, it may be dispensed with). Then with a short-toothed rake draw the soil over the bulbs, and when it is level give a gentle pressure with the head of the rake, to press the soil pretty closely upon them. After that is done, draw another drill for No. 2; proceed in the same way in planting and covering up, and so on till the whole are planted. If possible finish all the planting the same day. Then fix over the bed, or beds, some hoops three or four feet apart, with rods running lengthwise, and tied

to each hoop with either copper-wire or tar-twine. This is to form, with mats thrown over it, a shelter from severe frosts, should they come after the planting season, and also from heavy snow-showers, which sometimes visit us late in the spring. This shelter will also serve to protect the blooms from the bright sunny days when they are in flower. We, however, earnestly warn our florist amateur friends against too much shelter in early spring. Let the ranunculus have all the benefit of full exposure to the influence of kindly weather, both night and day. Too much covering up is quite as injurious as none at all. Even heavy showers of rain will be advantageous. All the shelter they require in early spring, is protection from very severe late frosts, heavy showers of snow, or from heavy storms of hail, all which calamities sometimes visit us in this our variable climate, and would almost ruin our charming ranunculus if they were left unprotected from their baneful effects, especially after they have made their appearance above ground. T. APFLEBY.

(To be Continued.)

THE KITCHEN-GARDEN.

LETTUCE.—The quality and regular supply of this important vegetable being attended with some anxiety on the part of the gardener, and those periods of dry weather we generally have in greater or less quantities, every summer, being so liable to derange that order by which the "supply and demand" is regulated, we make no apology for here devoting a portion of our Calendar to the general culture throughout the season of this necessary appendage to our tables. Without going back to the history of its first introduction to our gardens, or even to notice varieties now obsolete, we at once go to the cultivation of those kinds, which modern science has pointed out as being the best suited to the various wants of the present day, and shall begin with those more especially useful for winter or early-spring supply; a considerable portion of which we presume to have been planted at various times since the middle of September, and even now a few more may be yet put in, on any dry border that can be made available for that purpose. But to the kinds—we unhesitatingly point out the *Hammersmith Hardy Green*, as the very best for winter work. This useful little lettuce is, when true, of a deep green; the leaves thicker than most of the cabbage varieties, and less undulating also; it never gets large, yet forms nice little heads, which in April are very useful, being crisp, tolerably white, and sweet. It may be planted closer than most other kinds, and we strongly advise its use for the principal portion of the winter crop,—nevertheless, the *Brown Dutch* is also a very good lettuce, being larger than the *Hammersmith*, though not quite so hardy. Its leaves have a rusty tinge, and near the base are much wrinkled, which unfortunately is taken advantage of by the slugs taking up their abode there, causing a great destruction to this useful kind. The outer leaves are more plain than most of the cabbage kinds, but they form a nice compact heart, which in spring eats very well. This kind may be treated in every respect the same as the last, only in planting out allow a little more room, as it gets larger. Some years ago this was thought the hardiest Lettuce, and in cold bleak districts no other was attempted to be grown, until some one conferred a boon on the gardening world, by introducing the Hardy Green sort above alluded to. Next in importance to these two is (when it can be obtained true) a good, useful, *Brown Coss* variety; unfortunately that praiseworthy skill which has improved the qualities of so many of our garden vegetables, has not added anything to this; on the contrary, we think the *Brown Coss* lettuce of some twenty or

more years ago, was better than those of the present day; perhaps there may be some useful kinds of it found in remote parts of the country, but certainly the generality of that called *Brown Coss* by the seedsmen of the present time, is an inferior variety, loose, open, and spreading, while the improved kinds, as they call them, partake more of the appearance of the *Green* or *White Coss* varieties, and like them, are less able to endure the rigours of winter, or the scorching sun of the dog-days. So that we have often heard old gardeners lament, that amongst so many improvements in other departments, that of *Brown Coss* lettuce has certainly degenerated; the best kinds that we have ever been able to obtain of this useful article (as well as some other things which will be mentioned in their places) have been from cottagers, with whom *Brown Coss* lettuce has ever been a favourite, and we shrink not from avowing that we have often been very much indebted to this class of cultivators for some of the best varieties of vegetables that we have ever grown, and we are glad to hear our worthy coadjutor, Mr. Beaton, paying them a similar compliment. While we recommend our readers to plant a portion of this useful kind for winter, we advise them, in their several localities, to see if good varieties are to be had, and we doubt not but they will be thankfully received by those having the advancement of horticultural objects at heart.

We now come to some of the *Green* or *White Coss* tribe, and the best for winter use is the *Bath*, or some of its offspring. This is a *Green Coss*, and is sometimes black seeded, and sometimes white. The former is unquestionably the hardiest, but the latter is the finer when it does stand; it seems singular for two varieties to be both called *Bath*; certainly one must be wrong, but the means we have taken to discover their origin have been hitherto futile. As we have had them, however, both very good, their names are of less moment—we need hardly say they are both less hardy than the three first-mentioned, but if a mild winter ensue they are better flavoured. In planting this lettuce in September, or the beginning of this month, it is advisable to drag drills, so that the plants may be a little below the ordinary level, otherwise they get so "leggy." In giving the above details of winter lettuce, we hope the instructions given in the Calendars of the last few weeks, have been duly attended to, and that a considerable breadth of each kind has been planted on dry borders, and all casualties made good from time to time, besides a bed or two in some sheltered place, which are yet too young to handle;—if the quantity already planted be not thought sufficient, a few more may be yet planted, taking advantage of dry weather, and work a little lime, soot, or wood ashes into the ground, previous to planting, otherwise the slugs will make sad havoc of your plants, and, as a partial preventive, we also like dry weather on that account. We will defer our remarks on other lettuces until another opportunity.

FRENCH BEANS.—When there are conveniences whereby this vegetable may be forced, it is time now to put in a few seeds; we generally allow them to vegetate in a pan, and plant them out afterwards. Some shelf, or other suitable place, near the glass, in a pine-stove, is best; and great care must be taken, at this dull season, that they do not shank off, therefore do not pour large quantities of water over them, rather take the pot or pan the seedlings are in, and dip it in water, holding it in a few minutes, not so deep as to allow the water to rise any higher than within two inches of the level of the soil in the pot; this is better than watering at top. If any canker does show itself let it be dusted with charcoal dust, or very lightly with lime; and if the atmosphere be very dry, occasionally very slight syringings will be useful, but at this dull season there is generally sufficient moisture in the house for healthy vegetation,

but this crop is very precarious at this untoward season. See to those planted in pots some time ago, and keep them in a healthy condition, by all the means you have at command, otherwise they will do no good;—keeping close to the glass, taking care that no drip takes place, and removing all offensive matter likely to engender disease, are amongst some of the preventives to their falling a prey to thrip, mildew, and other misfortunes; as it unfortunately happens at this dull period that the usual antidotes to these evils can hardly be used with safety, our advice, therefore, is rather to keep disease away, than attempt to cure it. Protect any that are in bearing in the open ground or sheltered places, and let those past use be at once cleared away, and the ground manured, dug, or trenched, as the case may be.

CAULIFLOWERS we recommended last week to be pricked out into frames to stand the winter, we also advised those intended to be planted in hand-lights to be attended to at once, if not done before: we usually put nine plants in an ordinary square hand-light, and in spring remove all but the four corner ones. We allow sufficient space between the hand-lights in the row for their tops to be taken off, and placed between, and an equal space or more between the rows for walking on, and examining them: keep a sharp look out for slugs, and prevent their ravages by the means previously directed for this and other crops. See, also, that those left in the

seed-bed do not suffer by anything, as in a mild winter they make useful, good plants. Pick out all large weeds from amongst them, but a little chickweed, or such like, is not altogether without its uses amongst their stems when a severe frost sets in. In thus allowing that weeds are of some use, we presume we are speaking treason, nevertheless such is the case, whatever their annihilators may say to the contrary.

MUSHROOM-BEDS may yet be made, examine those lately spawned, and see that the heat does not decline too much. When there is a house on purpose, and they are wanted early, fire-heat will wonderfully hasten their progress; prepare materials for future beds, which keep from the heavy rains we often have at this season.

SUNDRIES.—*Asparagus* and *Sea-kale* wanted early must be now put into force, if not already done. (See last week.) *Endive* may yet be planted, and so likewise may *Cabbages*, but all work of this kind ought to be finished now as quickly as possible. *Celery* may soon after this be earthed-up for the last time. *Cardoons* we suppose to have been done some time sooner, and all vacant spaces of ground, not wanted for winter cropping, may be at once ridged or trenched, or both, taking such advantage of the weather as to have that work done while it is dry, and all wheeling performed when the walks are clear.

J. R.

MISCELLANEOUS INFORMATION.

ALLOTMENTS AND COTTAGE GARDENING.—NOVEMBER.

As we have not a great deal more to offer concerning allotments, we will offer a few remarks on Cottage-Gardens as well, for these, in some counties, form a different class, and are very frequently held by a different class of men. For the most part, the latter constitute the true agricultural labourers, whilst amongst the former may be found, perhaps in majority, the workmen of the factory, or our ordinary mechanics. The garden of the established cottager, too, differs from the urban class: the latter, under the allotment system, being principally devoted to roots, greens, and other annual matters, whilst most of our old cottage-gardens contain their apple-trees, pears, plums, cherries, gooseberries, currants, strawberries, &c.; in addition to the above, many, moreover, near market towns, attempt a few extras, as rhubarb, celery, brocolis, &c. Some of the latter class, too, possess a greater extent of holding; in these parts it is not uncommon to find a cottage with a couple of acres attached to it, the owner generally contriving to keep a cow, and also to fatten one or two pigs, or, it may be, to keep a breeding sow occasionally.

In making occasional trips through the country we have at all times, as in duty bound, kept a sharp eye on the state of cultivation which, in the main, characterises the latter class, and we are sorry to be compelled to observe, that, as a class, they are not what they ought to be in these stirring times. This autumn we have passed scores of cottage-gardens, where the owner had been either too idle or too ignorant to plant his early potato ground with some useful greens or Swedes. Now this is scandalous, and were we landlord to such holders, we should really threaten either to raise their rent or to provide a fitter tenant, painful as such proceedings must be to every well-intentioned person. It is much to be feared, too, that illeness, or, what is tantamount to it, neglect, is the chief cause, and that this might in some degree arise from the want of a provident forecast. The forecast alluded to, is the providing a bed of greens or Swedes in their own garden to fill the blank. We think it was Miss Martineau who once advised cottiers to sow a little cabbage-seed every month excepting October, November, December, and January; and good advice too, for how much better it is to buy a couple of ounces of seed, value 1s., than to risk being without plants, to plant improper ones, or to leave the ground idle.

Again, the state of the bush-fruit in some of these gardens

is really infamous, and cannot arise from sheer ignorance. Rows of gooseberries may be seen, with the couch-grass dangling triumphantly over the stunted ruins of what was once a useful and profitable bush, the latter, perhaps, dangling with moss, encouraged by the stagnant air. Apple-trees, too, smothered with the interior spray, which, possessing in some seasons superior "setting" chances, produces such a profusion of half-fed fruit as lays the foundation for early decay, whilst, at the same time, the fruit does not possess marketable properties.

Now all this, and much more, calls loudly for reform; and influential persons who fully understand how great a boon a well-managed garden is capable of being made to the cottager—both as a matter of profit, of convenience, and as tending to bring up his children in industrious, and, consequently, peaceful and social, habits—should at once lend a helping hand. The bearing of the subject on the poor's rates is enough, of itself, to recommend it to notice; for, depend upon it, that man whose garden is overgrown with nettles and couch grass, whose spade or fork has been laying flat on the ground in one of the walks, all over rust, for some weeks, and whose shattered window is stuffed with rags—that man, we say, is already within one short stage of the poorhouse. We shall take occasion to revert to these things again, during the rest period, and, in the meantime, proceed to consider existing crops.

POTATOES.—How lamentable it is, after so many years' experience of the fatal effects of the disease, to find that so little advance has been made in what is termed "breeding well," or, in other words, in applying extra care in selecting and preserving potatoes for stock. This lying down and "crying to Jupiter," is sad nonsense, and quite unworthy of the age we live in. Does really any man in his senses believe that the man who betimes carefully selects his seed potatoes, and preserves them free from fermentation, shall not have a much greater amount of success than he who leaves them in the wet soil until the corrupting haulm has fairly impregnated the potatoes with its virus, and who then, in the true spirit of a Dawdle, tumbles them into a deep pit, to undergo a stewing process for months, and when taking them out is necessitated to strip away all the first and best sprouts, which have become blanched like a stick of celery?

We have now several baskets of the purest sets we ever saw, not a diseased one amongst them, and never has been;

these, the results of careful breeding and preservation for four or five years, are now, we consider, brought back to their original purity. They are of the Ash-leaved Kidney and Radical breeds, and have lain on an outhouse floor for two months; they are now of a greenish brown, and cut with the knife as firm as a Swede turnip, whilst not a bud has sprouted, neither will do until next March. Such we claim as the result of care, and as being precisely in the position most congenial to their nature, fermentation having been unknown to their breed for four years at least. Really the apathy of one portion of our cultivators is annoying, and, we may add, alarming, for 'tis a national affair.

Again then, we beg to urge as the best advice that can be offered under present circumstances—

1st.—Select seed betimes; keep it dry, cool, yet free from frost: and totally avoid fermentation by thin layers.

2nd.—With regard to those for sale or late use, if in quantity, and no house room, be sure not to put them *below* the ground level; rather pile them above, and secure an issue for any moisture which may exude.

3rd.—Let all stocks be thoroughly picked over after they have been placed together about three weeks; sorting them with care. The bad to the pigs, the middling to market, and the sound, if desirable, reserved.

4th.—Let all eating potatoes be kept from the light as much as possible at all times.

With regard to autumn-planting it is difficult to advise, so much depends on circumstances. On sound uplands, with peculiar culture, perhaps the practice is commendable, as far as regards late kinds; but we have constantly failed in our early kinds by this practice. Now this cannot be prejudice; we were most enthusiastic in advocating the practice for trial some half dozen years since, believing it to be more agreeable to the conditions under which nature had placed the potato; and also as an avoidance of fermentation, which had been the "besetting sin." It is of little use quoting the robustness of potatoes left in the ground by accident; this only proves what might be readily conceded: that if potatoes escape injury from frost and wet, they are in a position to sprout with greater vigour, than if partially dried up in floors, &c. However, first-rate men are still divided about this matter, which ought yet to be considered an open question.

MANGOLD.—If this is not secured let it be done immediately. This root is very tender as compared with the Swede, and if once nipped by frost, a premature decay is the sure consequence. It is the best keeper of all our roots, as far as we are at present aware; and, as part of a system of root diet, of course should be preserved especially for very late purposes. Choose, if possible, a dry and windy morning for pulling them; let them lay three hours; then turn them, and use a sharp-edged piece of lath to scrape the bulk of the soil off them; and by four o'clock in the afternoon, they will be fit to go to their destination. Wherever they are put, dryness is the *great essential*, together with exclusion from frost. Thrown in a corner in any outhouse, they keep well; if they are placed out-doors they should be piled to an angular ridge, on an elevated, and of course dry, plot, and should be thatched or covered with thin turves, each overlapping as slates. In the latter case, some extra rough litter must be thrown over the turves in severe weather.

SWEDS.—These are a hardy root, and need little protection. Nevertheless, it is well to keep severe weather from them, both wet and frost. We have known them keep very well drawn from the plot where they grew—the tops cut off, the roots trimmed, and then stuck amongst the long grass of a pasture. This cannot of course be a Cottager's practice, and is named by the way, to point to their hardihood. It must be remembered however, that many things will keep well, although generally wet or damp, providing they are exposed to a free circulation of air. This of course presupposes the power to withstand frost. We have, in common no doubt with many others, picked up apples in December, and even January, nestled amongst decaying leaves, which astonished by their freshness, and seemed to mock the idea of building fruit rooms. Nevertheless, these facts do not demand a slavish adherence, but simply point to principles, which every wise observer will take as beacons, by which to shape his future course. Swedes, nevertheless, keep exceedingly well, piled in a ridge in dry ground, and covered with ordinary litter three or four inches thick.

PARSNIPS.—May be left in the ground all the winter, if for eating merely spreading a little manure over them for the next crop. If they *must* be taken up for the stock or the pig, they may be preserved as the Swede.

CARROTS.—Get them up as the Mangold, throwing them several hours in the sunshine, in order to kill all fibres. Cut the heads off rather "into the quick" to cripple the heart-bud. Carrots keep much longer this way.

CABBAGES.—Either plant out a good breadth directly, or prick them out to strengthen, until the second week in February. Whether they be planted finally now, depends on the allotment rotation for the ensuing year. Earth all those up the stems, which were planted some time back.

GREENS.—By this we mean the kale, savoy, Brussels' sprouts, thousand-head cabbage, &c., &c. Let all be thoroughly *cleaned*, the land well stirred, and all things of this kind soiled up as high as the under leaves. They will root all up the stem, and thereby much increase in bulk.

SNAILS, SLUGS, &c.—If these are troublesome, mix soot, cinder ashes, and a little quick-lime, if possible; and strew it thickly among and around all things liable to their ravages. A heap of this should always be kept in a dry place, ready for action.

ROTATIONS FOR 1852.—Let such be determined on immediately, in order that the appropriation of the manure-heap may be well understood; and that trenching, winter-fallowing, the applying of correctives, &c., may proceed by system all through the winter.

STIRRING SOILS.—We do not expect the cottager to be constantly stirring or forking his ground; but we do advise him that, the oftener he does so, the more he increases its fertility.

THE MANURE HEAP.—As soon as the future course of cropping is determined on, let the manure-heap be turned, incorporating any spare burnt materials with it, soot, &c., &c. We would separate it in two parts, reserving the coarser for present use, and keeping the finer for drills or beds in spring. Let it be carefully earthed over to exclude rain.

R. ERINGTON.

APIARIAN'S CALENDAR—NOVEMBER.

By J. H. Payne, Esq., Author of "The Bee-keeper's Guide."

THE requirements of our little favourites during this dull month are but few, and, indeed, if feeding has been well attended to where necessary during the previous month, none at all, beyond keeping them well defended from wet.

ADVANTAGES OF A NORTHERN ASPECT. I still continue to receive very favourable reports from those persons who have tried a northern aspect for their hives, the results in every case already represented to me have been satisfactory, but I am persuaded that the greatest care must be taken to keep the whole exterior of the hives from wet, where they are not placed in a bee-house; and however averse I may hitherto have expressed myself to the use of bee-houses, I am now inclined to think that where a northern aspect is decided upon, they may be necessary, especially in this part of the kingdom. In Devonshire it may not be required, but wherever hives are placed in this aspect without the protection of a house, I would particularly recommend that, be the coverings whatever they may, that they be sufficiently large to prevent the drip from them falling upon the floor-boards of the hives, for this would engender dampness, and the loss of the stocks would, in all probability, be the consequence.

BEE-HOUSES.—It must be remembered that, wherever they are adopted, they require the greatest care as to neatness and cleanliness, for at best they are hiding-places for the bees' worst enemies.

WASPS.—At last (October) we are, in this locality, inundated with these pests, so as to defy all attempts to eradicate them, for in some places nigh to us, a hundred nests may be found in almost as many yards, and the only chance there has been of defending our little pets from their maraudings, was to narrow the entrances of their hives, so as to admit one, or at most, two bees at a time; fortunately they made their appearance many weeks later this year than usual, or the consequences must have been bad indeed.

REMOVING BEES.—Should any of our readers, from what has already been said, feel disposed to try a northern aspect for their bees, I would recommend their not being removed

at this time, except they are brought from a distance, and then it is immaterial at what time they are removed; but if it be only from one part of the same garden to another, it will, be it when it may, be attended with considerable loss, therefore it had better be done when the cells are filled with brood, perhaps towards the end of March.

KEEPING OLD STOCKS.—I would recommend all cottage bee-keepers to read the papers of "A Country Curate," page 12 of the present volume of *THE COTTAGE GARDENER*, and to adopt the advice there given, (that is, where the storifying system is not adopted) namely, in keeping their stocks that have swarmed this year for stock hives, and taking the honey of their swarms, by driving, because they will not have only honey of a much finer quality, and a larger quantity, but the advantage in all probability of earlier swarms.

TRANSACTIONS OF THE HEN-YARD—NOVEMBER.

AN application from a correspondent of *THE COTTAGE GARDENER*, has led me to the idea that a few words about *hen-houses* would not be unacceptable to many of its readers. Comfortable housing, warmth and defence from bad weather, with a facility for cleanliness, are so necessary to render fowls profitable, that the situation and fitting up of the building intended for their use is well deserving attention.

A south aspect is best for the house, for fowls love warmth and thrive in it; if it can also be well sheltered from the east, a good supply of eggs may be confidently relied on. If the choice of a site for the house rest with the owner of the fowls, the north-east corner of the enclosure intended for their use will be the best to fix on; thus the house may face the south, and there should be a good wall, or stout, close paling along the eastern verge of the hen-yard. I consider good fowls quite deserving the respect and indulgence of a house to themselves; they are so much more cleanly and *inoffensive* than ducks and other kinds of poultry, that I think it much better to give them a place which can be kept quite distinct. The walls and roof of the house must be wind and water-tight.

Supposing ourselves thus possessed of weather-tight walls well-roofed in, we next come to the *flooring*. In this the chief point is to find the material which can most easily be made and kept perfectly clean. If on first building the hen-house a *present* saving of expense is found desirable, a floor of beaten earth may be used, and this, if kept clean, will do very well for some time—perhaps for the first year, if for only a small number of fowls. But, in course of time, this kind of floor will become saturated, and consequently foul; it should then have the surface pared off and replaced by some level flooring, such as brick, asphalt, or paving tiles. If there can be a gutter down the centre, running towards a neighbouring drain, it will be found much easier to keep the house clean by frequent washing down in warm, dry weather.

I believe the kind of *nests* for laying not to be of the slightest importance; for a perverse desire which hens have to take their own way, often makes them fix on the very one which appears the least commodious amongst all that are provided for their use. Box, basket, old hamper, or a nest pushed into any out-of-the-way corner, will stand equal chance of pleasing. But whatever, or wherever the nest may be, let it be kept perfectly clean, and let it be often supplied with a new bed of clean hay or well-rubbed straw. A very good nest, especially for sitting hens, may be built up with two or three ranges of loose bricks in one corner of the hen-house or any other out-building. If the floor is of brick the bottom of the nest should be spread with cinder-ash, sand, or mould several inches deep; for some hens are so rough in turning about their eggs that they are likely to get them broken on any surface which is so hard as brick. The nests must be placed quite free of the perches, and in a situation that may be reached by the hens without difficulty.

The *perches* should be broad and should not be placed too high: I have had a good hen killed by a fall from a high perch. Mr. Nolan recommends a tier of shelf-like perches resembling the stage in a greenhouse. I speak only from memory, as I do not happen to have the work at hand, but I think he mentions four inches as the width of

the shelves or perches. This stage or tier of perches must, of course, have a sufficiently low slope to allow the fowls to roost quite free of each other. I have not tried this kind of roosting apparatus, and cannot, therefore, speak from experience respecting it, but I should think it would answer the purpose exceedingly well, and would have the advantage over the hen's ladder of being made use of, by the fowls in descending as well as in mounting. Heavy fowls, such as the Cochin-China, are generally considered to do better if allowed to roost on a bed of straw in preference to a perch.

A sketch which accompanied L. A.'s request for advice about fitting up a hen-house, represented a nice brick building with sloping roof, than which nothing could be better adapted to the purpose. A portion of the front wall is formed of open bars; but it would be quite desirable to have the means of closing this portion in cold weather, which could easily be managed by having a piece of patent felt, bunting, or old carpet, to hang up inside when occasion requires. A little extra warmth, a storm-house—or shed in which the fowls may seek shelter in bad weather, is a valuable addition to the hen-yard. With the use of some patent felt roofing (a material which I greatly favour in my own little arrangements), it may be made without any great expense.

I know, by experience, that amateurs derive both pleasure and advantage from comparing notes, and, therefore, conclude that it may interest some of our readers to hear how my own fowls have thriven this year; such as have been more fortunate than I, will congratulate themselves on their success, while those whose poultry have not done so well, may feel desirous of comparing my plans with their own. I began the season with ten hens; seven of which are common, and three of a choicer kind. Some of them have set twice, and yet I have had a most abundant supply of eggs throughout the year. Several are now moulting, yet there is still a regular supply of three eggs every day. There were nine broods of chickens—sixty-eight in all. Although this does not give a very high average, I must confess that *more than nine hens* were employed in the hatching—thus reducing it rather lower still. I have lost five chickens in the course of the season, two from casualties, three from sickness. In this account of chickens and losses I do not reckon some two or three little badly hatched chicks, which died almost directly.

In accordance with a request which I have received, I will, with pleasure, write what I know about *ducks* next month.

ANSTER BONN.

BEEES.—PROMOTING EARLY BREEDING.

AT page 339 of the sixth vol. of *THE COTTAGE GARDENER*, Mr. Payne, speaking of the advantage of promoting *early breeding*, excellently remarks as follows: "In our sful climate this is a most important thing to effect, and every possible means of promoting it should be used." He then suggests that, in addition to having stocks well prepared to stand the winter, by leaving them "rich in store as well as in bees," (to which I would add, "and securing to them the advantage of *vigorous queens*") they should be kept "as cool as possible till the end of February," at and from which time, "where it is at all practicable, the temperature of the hives should be increased, by defending them externally from the cold of March and April, by any means that may the most readily be had recourse to for the purpose; perhaps (he says) binding the hives neatly over with hay-bands would be as little troublesome and expensive as anything." He then expresses his intention "for the sake of experiment, to place two or three hives in a greenhouse, in which the temperature will never be suffered lower than 32°, and in March and April, uniformly eight or ten degrees above that point." Now, I would first observe, on that part of his advice which relates to the coating of hives with bands of hay, that while undoubtedly it will be of *some*, and may be of *considerable* advantage, it will yet be of comparatively little use, if the entrance of the hive be withal *left open*, so that the air of the interior of the hive shall be liable to be affected and lowered by the influence of the external atmosphere, *especially in windy weather*. In the case of *straw-hives*, therefore, located in the open air, I do not expect (owing to the impossibility of so shutting the

entrance so as to exclude the influence of the outer cold) that any extensively good results will be found to accrue from the treatment proposed. But the case is very different when, as Mr. Payne proposes, hives are located in a warm greenhouse, or parlour window. In this instance, the cold external air * may be excluded as often as is required,—say every night when the bees are snug at home,—while, at the same time, the air of the room or greenhouse, may be permitted to communicate with the interior of the hive, by means of a ventilator beneath the floor-board of the stock, which must be a piece of perforated zinc. In this way the bees have the advantage of a free circulation of air, without any danger of the young brood being starved with cold by a sudden change of weather, as is often the case. Few people have any idea of the injury which is done to a hive in this way; for to this, doubtless, may be attributed the frequent removal, by the bees, of dead, half-formed grubs, so often seen in spring, especially on a change from cold to mild weather; and certainly *thousands* of eggs are rendered abortive in this way every year.

I shall now instance the case of one of my own stocks, treated last spring in this way, which will serve to shew with how much reason Mr. Payne gives the advice which I have quoted above. The stock to which I allude, was the same artificially-formed stock of 1840, with whose history in general, your readers are already acquainted. Though it survived the winter well, the bees did not shew any signs of activity, (i.e., the queen did not begin to lay) till about the 15th of February, full a month later than some of my other stocks. I did not meddle with it, however, till the third of March, when I shifted the box to the right of the position it had occupied during the winter, replacing it, at the same time, with an empty box, through which the bees had to pass to get out of doors. A narrow tunnel through the bottom board, communicated between the boxes at their corresponding corners, as remote from the entrance as possible. This change in itself produced a great evenness of temperature in the hive, besides somewhat raising it, and the bees no longer felt as before, the draught which rushed in at the old entrance. But the temperature was raised at once more considerably, and it daily increased, when I further closed the tunnel, which I did every night, by passing a zinc slide over its mouth in the empty box. Thus, no air from without could possibly reach the bees;† moreover, all inconvenience to them for want of air was obviated by opening a ventilator beneath their box, which communicated with the warm room in which I sat, where a fire was daily kept till the middle of May. Thus the bees frequently exchanged (as soon as they were all returned home) an external temperature, which, during the night, often fell considerably below freezing point, with a cold wind from the east or north, for a perfectly still, warm air, at a temperature always 20°, and often 30° higher than it was out-of-doors. The good effects of this treatment were soon apparent. For, though I never released the bees till the day was far advanced, yet they brought in immensely-increased stores of pollen, and the hive was speedily filled

* I am supposing that the bees have, of course, a communication with the outer world by means of some tunnel-contrivance through the floor-board, which can be closed by means of a metal slide, or block.

† A very curious instance in proof of this occurred to me this spring. In one of my hives, which I treated in the manner proposed, and whose temperature was consequently raised to about 70° (near the glass-window from which I made observations), the queen occupied almost every worked cell visible to me with an egg, on or about the 16th of April. I then had the curiosity to omit, for a couple of nights, my precaution of excluding the external air. The nights being very cold, the comb previously covered with bees was left deserted, and the temperature fell twenty, or more, degrees, but not below 50°. The consequence was that *not one of these eggs became a bee*: after a few days, though the bees returned to the deserted comb, the eggs disappeared, and, what was very remarkable, no more eggs were laid in these cells for a period of full a fortnight. I made a similar observation, in 1850, in another hive. From these and other experiments which I made, I am disposed to look upon the eggs of bees as very tender, and the vital principle in them easily destroyed. We may, therefore, form some idea of the immense waste of energy on the queen's part, and the loss to the hive where, as with us, the vicissitudes of weather and wind, which are often so sudden and severe, are not properly guarded against.

‡ Here I cannot but observe that the bottom boards ∇ , with their system of tunnels and slides ∇ (which any intelligent workman may easily construct), as explained at pages 113, 123, and 127 of "The English Beekeeper," of which I hope Mr. Payne will make trial in his greenhouse, are better calculated than anything I know of to answer the purpose of promoting early breeding in an amateur's apiary.

with brood. Drones appeared on the 9th of April; comb was first worked, and honey deposited in a glass on the 14th; the population, at the same time, doubling, and more than doubling, itself every month. The average temperature of the stock which, at the beginning of March was 50°, rose, at its close, to 67°, by the middle of April was at 76°, and at the beginning of ungenial May (when the mean average of my other stocks was about 60°, and often fell as low as 53°,) stood at 74°, rising on and after the 8th (when a milder air prevailed) to 85° as the average mean. Owing to the miserable weather of the previous fortnight, very little was done in the hive; but on the 8th of May, many large drones appeared, and active work was resumed, so that on the 11th, the bees took in force to two good-sized glasses at once, and a few days later, commenced work in a side-box.

Hitherto, everything had succeeded beyond my sanguine expectation; never had I seen so promising a stock, and that in a most backward spring, when most other stocks in the neighbourhood were comparatively weak. At this time, however, my fears destroyed my prospects. Perceiving on the 21st of May that, during a short absence from home, the bees had laid the foundations of several royal cells, and seemed preparing to swarm, notwithstanding their abundance of room, and fearing that I should lose them if they went off, which (as the temperature now constantly remained above 90°) they threatened to do every day, I resolved to make an artificial swarm without delay, though I should sacrifice, in so doing, my hope of any great spoil. This was accordingly done,* and with great ease and success, without killing a bee, the old queen and the new swarm taking the place of the old stock, which, when most of the bees had escaped from it, was removed to a vacant place in a lower shelf of the same window. To test the artificial system, I suffered every full-grown bee to join the new swarm, so that the old stock was literally *depopulated*, save and except that a few young bees remained, who had never yet sallied into the open air. On examination, every comb in this stock was as full as possible of brood, for the most part sealed, in fact, there were very few cells with young larvae in them. As I have already given an account of both swarm and stock, I need only say here that the latter gave me three-and-a-half pounds of surplus honey in a glass, besides working comb in a side-box, and the swarm gave me six pounds in a glass, besides, also, working in a side-box; moreover, I took nearly four pounds of honey from the box itself in October, and all this in spite of the numerous disadvantages of weather and season, which have disappointed many bee-keepers, besides myself, this year. Had the season been more favourable, I doubt not I should, even after dividing the population of my vigorous stock, have obtained an unusually large store of honey; as it is, in spite of all, I think I have not come very badly off.

A COUNTRY CURATE.

COMPARING NOTES.

As comparing notes seems to be the order of the day just now, perhaps a few remarks upon one or two plants would not be devoid of interest to some of your readers; and as I have lately visited Shrubland Hall, the seat of Sir W. Middleton, Bart., I have had the opportunity of ob-

* For the benefit of any amateur desiring to follow my practice in this instance, I add the following extract from my note-book:—"The glasses at the top of the stock-hive (in one of which I had perceived the queen in the act of laying drone eggs) were first of all removed on separate panes of glass. That in which the queen was, was next placed over one of the top holes on the side box, and the pane removed. The artificial swarm (for there were many bees in the new box) was thus made in a very few minutes. All that remained was now to close the communication between the boxes, and, after waiting half an hour, to remove the ventilator below the old stock; an immediate and continuous rush of bees then took place, which lasted for two or three hours, until the box was empty. The escaped bees at once flew through the open window in my room, and rejoined their companions in the new box. As soon as I perceived the queen to have left the glass, I removed it, replacing it, after a short time, with a larger glass, in which the bees worked simultaneously with those in the new stock itself. I have only to say that I shifted the swarm to the right, again replacing it, as I had done the other, with an empty box, in which, towards the close of June, the bees worked four or five combs, and stored several pounds of honey, which, however, I did not take from them. Let me add now that I by no means advise that all the bees be permitted to escape, as I did in the instance here recorded; such a practice would, in general, be fatal, as I have myself experienced; at least 3000 bees should remain—Bonner says 5000.

serving their growth and culture there, as compared with my own.

The plant that took my especial attention at the time Mr. Beaton was showing me over the grounds, was a long row of the *Double-yellow French Marigold*, and although I did not mention it at the time, I was particularly pleased with it; I never saw a yellow flower that produced such a gorgeous effect as this most beautiful plant; and any persons like myself, amateurs in the art of gardening, who have not seen it grown from spring-struck cuttings, would do well to obtain it at once; but as I have not seen it in a bed, I fear it would require support, as its stems appear rather too slender to bear erect such immense heads of bloom; certainly as a border plant it is invaluable. The best bed I saw in the garden, was the one of *Old scarlet variegated Geranium*, and *Verbena venosa*; which Mr. Beaton has so graphically described, as being like shot-silk, and I quite concur in his opinion, that no good garden should be without these two plants. To those who have not seen the *Verbena venosa* in a bed by itself, I would say, the effect is surprising when viewed from a distance, but it is not nearly so good in the early part of the season, as in September.

The two colours which I have the most difficulty in representing, are blue and white, (if the latter may be admitted as a colour) and my standard plant for a white bed, is a *white Petunia*. I have lately got a new one of this class, an unnamed variety, with which I was much pleased. The *Variegated Alyssum* is the next best, and it is much improved by planting an edging of *Lobelia erinus grandiflora* round the bed. The *Campanula Carpatica alba*, is beautiful while it lasts; but during the present month it does not produce a sufficient number of flowers. Of the *Matricaria*, I had a splendid bed from June to the middle of August; after that, it went off blossom, and I was compelled to cut them down;—now I see some white heads appearing among the flowers that I planted to fill up,—it seems about as durable as the *double Fever Few*. It is, however, a great acquisition to a border, and is easily propagated in spring.

I find from an article by Mr. Fish, that the *Fever Few* succeeds pretty well with him; and I doubt not that this *Matricaria* would do the same, and I flatter myself, if once grown, it will (to use his own expression) cudgel the *Fever Few* out of the garden. I have never seen the *Senecio alba* or *Groundsel*, mentioned in the pages of THE COTTAGE GARDENER, among the white flowering bedders; although I can make nothing of it here in *Cambridgeshire*, any more than the purple one, as it always dies away by the end of August; yet, those who succeed with the one, would doubtless do so with this white variety.

Among the blue-flowering plants, I do not know a really good one for beds; the *Lobelias*, particularly *ramosa*, and *Anagallis*, do not expand their flowers except when the sun is bright upon them; and as most persons visit their gardens after the burning heat of the day is over, they do not then show themselves to advantage. The *Salvia patens* is uncertain for a bed, and I find I am not alone in my misgivings with it this year. *S. Chamædryoides* is insignificant in a good arrangement. There is one plant that I confess I have been rather disappointed in, for there has been a good deal said about it—I mean the *Enothera prostrata*. It is not half so good as *macrocarpa*, and is not showy enough to become fashionable, while we affect a display of such gaudy flowers. I dare say I shall be thought fastidious by some, but I scarcely think it will become an universal favourite.

My *Heliotropes*, although not planted in a rich soil, have so completely overrun the *Verbena*, that in a large bed of them I can scarcely count ten flowers of the latter. I would suggest that the *Heliotrope* be planted in pots, and plunged in the ground, and the *Verbena* be allowed to grow freely between the pots. This would, no doubt, tend to check the growth of the one, and allow the other a greater share of room. If any one has tried this plan, I should be glad to hear the result.

I had very nearly forgotten to mention the *Kentish Hero*, *Calceolaria*. It is, indeed, the hero of its class. I saw this also finely in bloom at Shrubland, and since my return home I have applied to several nurserymen for it, but they tell me their old plants are all stumped, to make young plants for

sale next spring. I had hopes of getting up a stock of it myself, and it is rather a disappointment when one admires it so much. Bedding *Geraniums*, too, are grown to perfection there, though I will not particularise any, as Mr. B. is about to give a descriptive list of the whole of them; but mentioning these plants, brings me in mind of my success in rooting the variety, Rollison's *Unique*, lately. At the end of July, I inserted a dozen cuttings of it round a pot, and placed it under a north wall; about a fortnight since I took them up, and put the pot of cuttings in a little heat, and now I find every one has struck root. This seems to be the only way of increasing them in the autumn. R. L.

NOTES ON THE HIVES IN THE CRYSTAL PALACE.

As your apiarian readers may be glad to know what impression has been left on the mind of a practical bee-master, as such, by a visit to the Great Exhibition of 1851; seeing, moreover, that I have become well-known to them (perhaps too much so) as somewhat of an innovator on the ancient bee practices of our forefathers, I will endeavour to put together a few notes, according to your suggestion.

I would first of all express the surprise and admiration with which I regarded the *working* hives of the Messrs. Neighbour and Milton. To see so much honey (even in glasses) collected and stored in such a locality! Who shall now say that bees may not be kept anywhere? I was informed, however, that on being first hived it seemed doubtful whether they would do anything at all; be this as it may, there could not have been less than from 12 lb. to 15 lb. of honey stored in each hive, and perhaps even more. The vicinity of the Kensington Gardens, as well as of Hyde Park itself (if they contain sycamores, acacias, or limes in any quantity), will account for *part* of the honey collected, but I fancy the bees must have gone a long way in search of the main portion of their stores, perhaps to Hampstead or Hounslow, or else honey-dews may have abounded at hand.

As to the *hives* exhibited, I was, I confess, disappointed. There lacked, indeed, no supply of *fancy* hives, of various shapes, sorts, and sizes, and of different excellencies; but of cheap, simple, improved hives for the use of *cottagers*, I saw not one which in my estimation surpasses Mr. Payne's for the poorer, and Mr. Golding's Grecian hive for the more intelligent, class of cottagers. Of these very well made specimens were exhibited. The keeping of bees in this country must ever be the poor man's perquisite and occupation, *par excellence*, however the rich may amuse themselves with watching and studying the habits of these insects; on this account, the first commendable advance in the science, will begin *with* the cottager, and *for* the cottager. In this respect the Exhibition has, I think, failed,—I mean as to the introduction to our notice of any valuable novelty in this particular. Of hives for the *rich* I chiefly admired the *Lady's Observatory Hive*, of the Messrs. Neighbour and Son, with the new addition to it of a false inside roof of wooden bars, supported on an upright post in the centre; it answers in every respect as well as a common hive, and you have the advantage of being able, at a moment's notice, to inspect the works of the bees on every side with the most perfect security. Its price, also (£2 2s), is *comparatively* moderate; but, in truth, I wish these and other hives exhibited could be offered for sale at a considerably cheaper rate than they actually are. For increased facilities of watching the bees I should prefer this hive to be of an oblong shape, and I would so contrive it, by the help of guide-comb, that the bees should work *diagonally*;* by this means large portions of every comb would come into view from the outside, and the queen's movements, as well as the interior processes of the hive generally, be more effectually seen.

Mr. Taylor has introduced a considerable improvement in the shape and dimensions of his bar-hives; every box is broader and shallower, so that the whole structure is considerably less Babel-like than before. No wooden hives will

* Also, I would manage to secure the bar-roof inside without the help of the upright stick which at present supports it; this must have a tendency to interrupt the symmetry of the combs.

do better than those for the amateur, if he have a well-protected and sheltered nook in which to put them, and under cover of a thatched roof or bee-house.

Mr. Munn's *bar and frame hive* is worthy of notice (in addition to its beautiful adaptation to its peculiar end) for the ingenuity with which its inventor has sought to remedy the inconvenience arising to the close-observing amateur from the habit of stopping up and choking every (even the smallest) aperture with propolis. Until, however, we can alter the instinct which urges the bee to stop up every crevice in its home, Mr. Munn will find it necessary, from time to time, to modify and alter his hive. The truth is, it is impossible so to construct a hive of several compartments, that every compartment shall easily separate from its fastenings, and be perfectly at command for inspection; but the scientific bee-keeper will find Mr. Munn's hive a decided improvement on that of Huber. As an invaluable addition to the apiarian observatory it is well worthy of notice.

We have, also, a newly modified, and elaborately constructed *Nutt hive*, by Mr. Phillips, the hundred-and-first attempt to remedy the evils of the Nutt principle. Ingenious, unquestionably, as the hive is, it looks far too expensive a structure for the amateur of moderate income.

I might mention a variety of other hives in addition to those I have mentioned above, but, though I saw ingenuity in all, none save those I have mentioned struck me as introducing any really useful improvement. I ought to state that I regret much having omitted to examine Mr. Kitchen's new *ventilating apparatus*, but we are promised a description of it in *THE COTTAGE GARDENER*.—A COUNTRY CURATE.

HOME WINE MAKING.

I HAVE much pleasure in hearing that the manufacture of home made wines is exciting interest among the readers of *THE COTTAGE GARDENER*, and willingly contribute another paper on the subject, and allude to some minor details for which I had not space in my former communications.

And first as to bottling. In all wines intended to be effervescent, the bottles should be of the kind known as "champagne bottles," as such are much stronger than the common wine bottle, and, consequently, less liable to burst. They may be procured second hand, in most towns, at a reasonable rate; I purchased some last year at fifteen shillings the gross or twelve dozen, quarts, and at twelve shillings the gross, pints; they should of course be made scrupulously clean before they are used. The corks should be the "best white," which will cost about six shillings the gross. *It is false economy to use any but the best.* The bottles should be filled to within two inches or so of the mouth, and the corks driven in tightly, so as to leave rather more than half-an-inch outside the bottle. This operation may be much facilitated by using a cork-presser, and dipping (not soaking) them in water as they are used. The next step after corking, is securing the corks with wire, or string, or both. The proper wire (the newly-introduced flexible wire is the best) is to be purchased by the pound at most ironmongers, ready cut into lengths. I fear that, without diagrams, I cannot describe intelligibly the proper way to fix the wire, which to be neat and efficient must be applied in a peculiar manner; but if my readers will examine attentively the way in which the cork of a bottle of soda-water is secured, they will understand the matter better than by a page of description. I have usually found one wire to be sufficient security, but if it be preferred that the cork should take the appearance of a champagne cork, a second wire or piece of string may be put on, crossing the first at right angles; and if just previously to the wiring, the cork above the bottle be dipped, so as to soften it, into a little hot water, it will be found that the pressure of the wire will cause it to assume the peculiar rounded top which is desired. If it be wished still further to give it the external appearance of foreign wine, some thin tinfoil may be cut into strips, and pasted round the cork and neck of the bottle; but this covering, as far as my experience goes, is more ornamental than useful, and, of course, involves some additional trouble and expense.

When the wine is all bottled, which it should be between

November and March, it should be laid down in a cool cellar; the bottles to remain on their side until April, when they may be placed upright, again to be laid down the beginning of winter, and placed upright again the following April. By attending to this direction, which is one given by Mr. Roberts in his book, that gentleman says that he has no doubt wines will retain their effervescence many years. I have myself no practical experience of the utility of changing the position of the bottles, but I have no doubt that it will tend to prevent their bursting, which sometimes occurs in the hot weather, though I have never met with this casualty myself, beyond an occasional bottle or two, and I fancy it will seldom occur if the wine has been properly attenuated, and is housed in a cellar of an uniform cool temperature.

And now with regard to the addition, so commonly ordered in receipts for made wines, of *brandy or other spirit*. It has been considered that this addition tends to preserve the wines, and causes them to be kept for a longer time without turning sour; but this idea is founded in error, for we have the authority of Dr. Maccullock for saying that "the addition of spirit will *decompose* wine," and that "the process, though it may be slow, is certain." If wines are improperly fermented, the admixture of sugar and brandy, may cover the flavor of the vinegar in their composition, but these additions will fail to render them *wholesome*; and I am certain that any one following carefully the directions I have laid down in my previous papers, feeling his way as it were with the aid of the saccharometer, will have no occasion to turn his wine into "grog" in order to render it palatable.

Substances intended to impart colour (such as beet-root, or cochineal for a rosy tint, raspings of burnt crust, or burnt sugar for a darker brown shade), as well as those intended to give an aroma (as cowslips in cowslip wine, elder flowers in frontinac), should be added after the height of the fermentation is over, as that process destroys or alters both colour and aroma in a great degree; the wine-maker should likewise bear in mind that in all boiled liquors, as in parsnip and such wines, it is more difficult to excite the necessary fermentation, and often an artificial ferment, such as yeast, must be added. In those wines, too, made in winter, or early spring, as raisin or orange wine, it is necessary to keep them near a fire while undergoing fermentation, or, at least, to be careful to conduct this process in a warm and equable temperature.—H. W. LIVETT, *Wells, Somerset.*

NOTES ON BEE-KEEPING.

TAKING OFF GLASSES AND SMALL HIVES.—At page 278 of your last volume but one, I pointed out a method that I had accidentally discovered for taking off supers, in the hope that some of my brother bee-keepers would try it in the course of the season just passed away, and I shall be glad to know whether any of them have done so. As the communication appeared at that season of the year when our minds are directed to the more active, though, perhaps, not more pleasing, operations of the apiary, it may have escaped their recollection; but as the progenitor of the bantling, it has, of course, not escaped mine, and I now send you the result of my own trials of it. I have tried it in four cases: in the first three it was entirely successful, and I carried away the plunder of a glass, a straw hive, and a wooden concern, with glasses, described at page 57 of the last volume, the next morning in triumph; in the fourth I failed, yet my failure has confirmed me in my favourable view of the method, and that for reasons that will presently appear. Upon finding the bees still amongst the combs (it was a large glass, holding about 12 lbs., that I was operating upon), I resorted to the old method of carrying the glass into the shade, and commencing the tapping process, but all my efforts were to no purpose; not wishing to waste any further time about the matter, I stupefied the bees with the *Racodium cellare*, and quickly effected a clearance. Then I discovered that about 40 of the cells nearest to the stock hive were filled with the larvæ of young bees, and that the queen herself, following the example of another illustrious personage in these realms, was on a visit to her northern subjects.

And here let me give a word of advice to such of my fellows as are less experienced than myself—*never smoke a super for the purpose of taking honey*, at all events while there are drones about. The smoke (whether from the terror it creates or not I cannot say) acts in such a manner upon the drones as to produce a most vile disfigurement of the combs.

ARTIFICIAL SWARMS.—I take this opportunity of adding my thanks to the many that have been offered to our unknown friend, "The Country Curate," for his amusing and instructive papers. I should be glad to have his opinion as to my chance of success in attempting the following plan of artificial spring swarming, and I suggest it for the following reasons:—I noticed that upon the first introduction of smoke into the glass just mentioned, all the bees in it crowded to the top, pressing their heads against the sealed cells, or inserting them into the open ones, for the purpose, as one must naturally conclude, of staving off as long as possible its baneful effects. Further, though many plans have been pointed out for the formation of artificial swarms, and though such plans have been adopted with success (see particularly the two communications at page 325 of the last volume), it must be admitted that the formation by driving is attended with considerable trouble, to say nothing of the danger of damaging the heavy brood combs by reversing the hives preparatory to the driving. (This objection would not, perhaps, apply where the old system of fixing sticks across the interior of the hive is adopted, but *such* a system is not to be thought of by us new lights.) Supposing then that it is the habit of bees to seek the upper parts of the hive, under the influence of smoke, why not place the hive which you wish to stock (fitted with a temporary floor-board, having a hole four inches square, in the centre) over the hole in the centre of the stock hive, and apply the fumigator to the entrance hole towards the evening? would not the bees immediately ascend? Should they directly afterwards become stupefied it would be but of small consequence, they would fall upon the temporary floor-board; stupefaction, however, does not take place immediately, and, by admitting the smoke slowly, there would be sufficient time to drive up the required quantity of bees. Perhaps a piece of perforated zinc might, with good results, be placed upon the hole in the top of the upper hive; the smell of the fresh air might induce the bees to mount more readily. Then, should the swarm be a small one, the suggestion of the Country Curate, to be found at page 38 of the English Bee-Keeper, as to placing it in the position of the old hive, and the old hive on a new stand, might be carried out. His system, however, is now being explained by him in your pages. I have read his work, and think so highly of some of his suggestions that I shall certainly try them; he is, in my idea, doing "the science" a service by divulging them in the columns of our little world. But to return,—an easy method of artificial swarming is a great desideratum for those who, like me, are engaged through the day. To know that you are not dependent upon others for the proper watching of your hives at swarming time, is a great thing, and I feel much inclined to *try* the above next year. The time *when* has been pointed out already in various parts of your volumes.

FUMIGATORS.—Those who have a Brown's or an anybody else's fumigator, need never be at a loss; it will only be necessary to have a flat mouth-piece made to fit on in the place of the bent moveable nozzle, that is usually a part of it. To those who have nothing of the sort, I would point out a very useful contrivance, described in Miner's American Bee-Keepers' Manual, as follows:—"It consists of an ordinary bellows, with a tin tube about three inches long, and two inches in diameter, fitted over the air-hole. The cover to this tube is perforated with holes; and the air-hole is covered with tin, also perforated in like manner." The mode of using it is sufficiently obvious; Miner calls it the most simple and practical fumigator in use. This book of Miner's is, by the way, a very useful sort of book. The author is, like most other writers on bees, rather dogmatic in his opinions; but we spectators do not care much for that; we adopt the manners of our own favourites, and wandering from flower to flower, or rather book to book, take what we want from those which suit us best.

SUPPLYING WATER TO BEES.—Most likely many of your

readers have been, like me, sadly bothered about floats for their water-pans. Bits of wood floating about in them, do not present an over neat appearance; besides, unless continually dried, they become water-logged, and sink. Miner recommends (and I see the Country Curate does the same) that the pan should be filled with small stones. He says—a tin baking-pan, about an inch or more deep, is suitable. As the water should be renewed every morning, I think it would be convenient to have the pan rather deeper along the centre, than elsewhere, and to have a thumb-screw fitted in at its deepest part, whereby to let the water off preparatory to refilling.

ASPECT, SCREENING HIVES, AND WINTER CONSUMPTION OF FOOD.—Now so much is being said about the winter consumption and general prosperity of hives, in connection with aspect, I feel much inclined to make a few remarks on the subject. I am one of those who tried the burying system last winter, and I take this opportunity of stating that my buried hive has done very well throughout the season. I do not at all regret having tried the experiment; in fact, I am quite ready to try any other that may appear calculated to advance the science. Our clerical friend having taken up the cudgels on our behalf, and given to our detractors what they deserve, and to our experiments something of a heroic cast, the whole matter may as well be allowed to drop. The report of my attempt appeared at page 40 of the last volume, and I there mentioned that the average monthly consumption of two unburied hives, between the 20th of October, and the 20th of January, did not exceed ten ounces in one case, and twelve in the other, and this moderate consumption was attributed to the hives having been protected through the winter from the direct influence of the sun.

Now, if the matter in dispute is merely as to the advantage of a certain position, in consequence of such position being that in which a *minimum* consumption of honey takes place, and if the old-established position is found advantageous for *any* reasons at all, it would seem that if this *minimum* consumption can be obtained by any means not involving a change from the old position, it would be advisable to adopt such means. It has, hitherto, been considered by the most intelligent writers on bees (Mr. Taylor and Mr. Payne amongst the number), that the *morning sun*, at all events, is advantageous to bees. I have noticed that one of my hives, which is more shaded than the others, is always about half-an-hour after the others, before it gets well to work, a somewhat serious matter in this country of short seasons, where every half hour is of importance. Again, where water is not abundant, the bees take advantage of the heavy dews which so abound with us—at least, I fancy so, for when my bees have been prevented by high and drying winds from getting out early, they have invariably made a greater use than usual of the water-pans, towards the middle of the day. For these reasons I feel partial to the old southern or south-eastern aspects; by the use of the jackets described at page 57 of the last volume, aided by a piece of inch stuff, about three inches square, placed on edge before the entrance hole, the inducement for the bees to leave the hive, viz. the sunshine, is warded off, a moderate consumption of food takes place in winter, internal heat, and consequently early breeding, is promoted, and the three-inch piece being removed, somewhat of the effect of shady walls and shrubberies is produced in summer. As between the 20th of January, and the 20th of February, the two hives above referred to, lost nothing in weight, and as such can only be accounted for by supposing that breeding had commenced, I cannot help thinking that such breeding was partly to be attributed to the quiet state of the hives through the winter. It is not internal heat, but activity, that causes increased consumption.—R.

THE DOMESTIC PIGEON.

CARE TO BE TAKEN OF THE DOVEHOUSE.

PIGEONS only attach themselves to their dovehouse so long as they find a wholesome and convenient shelter there, and an agreeable and safe lodging where they can rear their young. If these conveniences are not united, they soon become tired of it, and abandon it. These birds cannot bear a bad smell; when they are exposed to it for a long time,

which only happens when they are retained by their young in a dirty dovecote, they droop, contract diseases, and perish. It is, therefore, necessary frequently to sweep the floor, so as to remove the dung before it ferments, which will happen whenever it is collected together in a heap. This operation ought to be repeated every month, or, at least, four times a year. In this last case we should choose those times when the pigeons are least occupied in brooding: the first time we should clean it in spring; the second, as soon as the first flight is passed; and the fourth time, at the beginning of winter, when the laying is over. We should be very careful to thoroughly clean all the boxes and nests every time, for when the dung is allowed to accumulate there, it is very injurious to the young; it heats them, and produces vermin, especially worms, which are sometimes so numerous that they attack their feet, and even belly. The person employed to remove the dung must do it as gently as possible, because the dust arising from it is excessively annoying both to man as well as pigeons. They must also be careful not to get any of it in their eyes, for, if old, it will occasion a long and painful inflammation, but if fresh it might cause loss of sight. (?)

Every time we take any young pigeons we must not neglect to rake out the nests, to rub them with a hard brush, and even to wash them, if we can do so conveniently. By this means we shall destroy the lice, which are the greatest scourge to young pigeons. These insects stick to them by thousands, suck them, make them thin, and prevent their growth, or, at least, greatly retard it. We should try to tame the pigeons, so as not to frighten them so much when we enter their dwelling. Some are apt not to return to their eggs when they have been frightened from them. We have already said that the best manner of familiarising them is to whistle every time we throw them any grain. On entering the dovecote we should knock at the door before opening it, to give those that may chance to be on the ground time to gain the upper part of the building without too much hurry, which might occasion them to break their eggs.

We must never allow any dilapidations in the dovecote without repairing them immediately; we must also be particularly careful to keep it clean; we must never suffer any unusual filth in the interior; occasionally, to purify it, we should take advantage of the time when they are in the country to fumigate it, but this must be done with prudence and moderation, because it may become dangerous. Perhaps it would be better to content ourselves with burning a little straw, and hanging up, at certain distances, small bundles of mint, sage, lavender, and other aromatic plants, the smell of which they are very fond of.

PIGEONS' DUNG.

We shall refer to an article extracted from the New Dictionary of Natural History relative to the utility that agriculture may derive from pigeons' dung; for, in certain countries, it is a very important production. "Pigeons' dung is one of the strongest manures we possess; in a very short time it fertilizes the damp and cold meadows; it doubles the harvest of leguminous plants, and especially the hemp, when we know how to use it properly; it is also very good for trees, at the stem of, which we must put it after the rain has deprived it of its first heat, otherwise it would burn the roots as it does the weeds on which it is thrown. This manure being easily removed, is particularly valuable in the mountainous and barren countries, where the land, being some way from the dwelling, is difficult of access by any vehicle."

Pigeons' dung from the domestic dovecote has the inconvenience of sowing with it the vetch, barley, hempseed, buckwheat, and millet, which the birds have dropped in their nests; for although it kills weeds, the good grain, protected by nature, resists it.

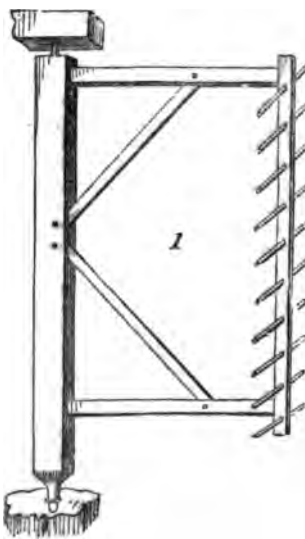
Pigeons' dung is so filled with salt and extractive matter, that unless it is exposed to the air for a certain time, especially in rainy weather, by scattering it quickly, or without mixing it with vegetable mould, and a very considerable quantity of it, we should run the risk of spoiling and destroying the principles of germination. It may be thinly sown on heavy land every time any seed is sown, or even with the seed.

In some places they mitigate its activity by mixing it with horse-dung or rotten cow-dung; but this mixture, which is, nevertheless, very good, ought to be made in any other place than the dovecote. Some agriculturists scatter pigeons' dung on a piece of wheat after the frost, but this method only succeeds when the spring is wet, and the land heavy; for if it is a dry spring, and light land, this manure does harm; it would be better to spread it in the autumn before the last ploughing. The rain moderates the heat of it, which, no doubt, suits the corn, but especially the hemp-cloze and meadows, where it destroys the moss, bulrush, and other destructive plants, whilst it causes the good herb to grow abundantly.

Some gardeners, following the judicious observations of M. Thouin, Professor of the Museum of Natural History, make use of pigeons' dung in the composition of earth for foreign plants reared in pots; but care must be taken not to employ more than a sixteenth part of it, and when reduced to mould, for if it is used when more fresh, and in larger proportions, it would only dry up the roots of the plants. If this dung, well decomposed and reduced to mould, is mixed with heath-mould, which is now generally used for all haired-rooted plants, and even still finer, it will rectify that poorness and dryness which causes a great number of valuable vegetables to droop. It is also employed to take off the rawness of water from a well, and particularly to neutralize the salt it sometimes contains, and render it less liable to evaporation from the soil. For this purpose they throw the thirtieth part of a pound of this manure at the bottom of the casks which receive this water, and every time they are going to make use of it for watering they stir up this mixture. This fluid thus charged with pigeons' dung is employed in the kitchen-gardens to water those fruit-trees which are young and unhealthy; it frequently produces a very good effect.

UTENSILS FOR THE DOVEHOUSE AND AVIARY.

1. The swinging ladder (fig. 1) is extremely convenient



for those dovecotes, in the shape of a round-tower. By this means, we can visit all the nests without trouble, and without any great motion likely to frighten the pigeons. It is made in several ways; but we shall confine ourselves to describing the most simple and easy. We must search for the precise middle of the flooring of the dovecote; and when we have found it, we should take up a square, and replace it with a large solid stone, in the middle of which a hole has been made large enough to receive a pivot, as we shall explain presently. The hardest stone ought to be preferred, because it will not be so soon worn out by friction. The free-stone,

however, is not good, because it is so easily worn away by the iron; but the jasper and flint are excellent. By means of a beam across the upper part of the dovecote, we shall place vertically on the stone a strong piece of wood, furnished at each extremity with an iron pivot, of one inch diameter. The lower pivot will be placed in the hole of the stone, but in such a manner as to turn freely; and the upper pivot will be fixed in an iron plate, in which it can also turn with the least possible friction. We imagine that this piece of wood, which we shall call the axletree, ought to be placed perfectly upright. On the upper part of the axletree, and the lower part, that is to say, at a foot from the floor, we shall fix, at a right angle, two pieces of wood parallel and solid, supported by two other pieces exactly like a double crutch. The two ends of the pieces of hori-

zontal wood ought to be placed on a level, one over the other. We should fix a travers four inches wide, and three thick, on the two horizontal pieces in such a manner, that we shall have a square frame turning on one of its sides (the axletree), whilst the other in turning will make the round of the dovehouse, never being more than six or eight inches from the nests, if the dovehouse is exactly round, which should be the case. The travers or opposite side of the axletree must be pierced with round holes 10 inches apart, in which we should place ladder-steps, extending eight inches on each side, and thus forming a ladder, by means of which we may easily visit all the nests without trouble, if, whilst one is on it, another person turns it so as to present it in front of the nest we desire to reach.

2. NEST HOLDERS (fig 2) are nests which are only made use of in the aviary. They are round, in the form of a plate, but never more than an inch, or an inch and half deep. They must be of different dimensions, in order to suit the size of different races of pigeons. The smallest ought to be five inches wide within, and the largest seven. We shall choose them flat and smooth on the outside, so as to be able to place them level. We must always have double the number of them to the pairs of pigeons, because every couple should have two at their disposal. In those countries where the clay has not sufficient solidity to make a nest as that of Paris, they may be made of baked-earth, without varnish, for when they are varnished they do not absorb the damp from the dung of the young pigeon: it would engender a multitude of insects, and even worms, capable of attacking the young ones. Besides, they would suffer materially from always being wet, and the least cold would cause them death. These earthen nests would be preferable to those of plaster, if they were not twice as dear, because they can be brushed out, and washed without injuring them; but, however, the amateur who would determine to go to this expense, would be well recompensed by their durability.

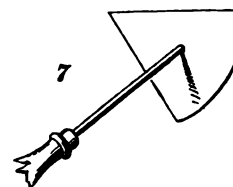
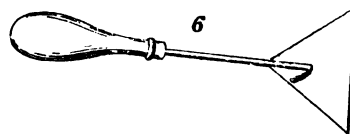
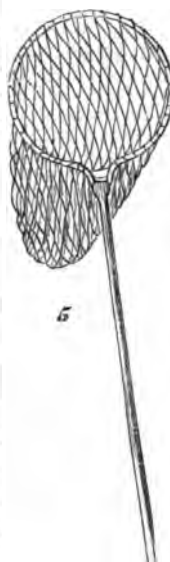
3. THE WATER HOLDER (fig 3) is of baked earth, varnished inside, larger or smaller, according to the quantity of pigeons we have to supply with water. This holder is composed of two pieces; the watering-place, *a*, and the bottle, *b*. The drinking-place ought to be almost the form of an earthen vase, that is to say, that the middle part should be larger than the top and bottom. At three inches from the bottom, whatever its size may be, the middle should be pierced with opposite holes like windows, through which a pigeon can easily pass its head, so as to reach the water. These holes may be three inches in diameter, and more, if it does not injure

the solidity of the piece. The edges of this drinking-place should be a little widened, so as to be able to support the bottle maintaining its own level. The bottle is nothing more than a stone pitcher without handles, and having a large middle. Its neck should be long, like a bottle; the length of the neck, and the size of the middle, must be calculated in such a manner, that when reversed on the watering-place, the orifice through which the water that it has been filled with will issue, when at two inches from the bottom of the drinking-place, when the middle will support it on its sides, and thus firmly fix it. By this means the bottom of the water-holder will always be freed from filth; and as long as there is any water in the bottle it will maintain itself at two inches height from the bottom of the drinking-place. We must always be particularly careful to keep the water-holder very clean, and to renew the water as often as possible. In the winter, especially, we must watch that it does not freeze. It is advisable to have several water-holders in a large pigeon-house.

4. THE TROUGH (fig. 4), which we shall not describe, because everybody knows what it is, should be of a size calculated by the number of birds we have to feed. The manger should be surrounded with a small shelf, pierced with several round holes, about two or three inches apart, large enough for a pigeon to put its head through easily; it is useful to preserve the grain

from the filth which might fall into it. It is covered again with a plank, extending above three nails on each side, to prevent the dirt from falling into the grain.

5. THE NET (fig. 5) is a kind of wire net, about eighteen inches wide, furnished with a deep wire pocket, and hafted on a stick of five or six feet. This is used to take the pigeons, and particularly the old ones, with facility, that we wish to draw from the dovehouse; by this means we do not pursue them too much, or frighten the others.



6. THE SCRAPING KNIVES (figs. 6 and 7) are small, triangular blades of iron, very much in the shape of a mason's trowel, but hafted by a hole or socket placed in the middle of the blade. They are perfectly triangular; they serve to scrape and clean the nests, and especially the flat surfaces. They are also made with one side of the triangle round, instead of straight; these are very convenient for the nest-holders.

7. The brushes which are used to wash and brush the boxes in an aviary, in order to destroy the mites and bugs, should have a handle of five or six inches; the hardest are the best. Lastly, there ought to be a good quantity of birch brooms, very hard, which should frequently be made use of; for the prosperity of a pigeon-house depends as much on its cleanliness as all the other causes united.

DESCRIPTIONS OF PIGEONS.

THIRTEENTH RACE.

COWLED PIGEON (*Columba cucullata*).—It would be difficult to conjecture the reason that has determined all ornithologists to place these birds in the race of the *mixture*, whilst there are few pigeons that transmit to their posterity forms so pure, and characteristics so prominent and invariable. They all have the head, tail, and flight, white; a pearled eye, and small ribbon round the eyes; on the back part of the head they have a raised ruff of feathers, hanging down to the neck, and extending on to the breast, like the cowl of a monk; this curled gorget is very commonly dyed with changeable colours, producing an extremely agreeable effect. Their figure is small and elegant; their beak very

short. The females are never streaked. They produce well; wander but a short distance from the buildings, in consequence of the ruff rendering their flight fatiguing; and they easily become tame.

JACOBIN PIGEON (*Columba cucullata Jacobina*).—This



pretty pigeon partakes of different colours, of which we have several sub-varieties.

HELMETED COWLED PIGEON (*Columba cucullata galerita*).—It is black, with the head, flight, and tail white. It is of a larger size than the common Cowled, approaching that of the Pouter. Like these last, it has the habit of swelling its throat a little, consequently, it has been supposed to be the produce of one of the Pouters and the Cowled. It has a short beak, small wing, an elegant form, and the ruff of feathers gracefully raised, but it is not very productive.

CAPED COWLED PIGEON (*Columba cucullata bardocucullata*).—This differs from those that precede it in its cowl, which merely forms a simple shell, and does not extend below the head. It is a mongrel, proceeding from the "Capuchin" and a mixture of small size. Although it produces well, it is rejected by the amateurs.

This pigeon afford us an opportunity of making an observation equally applicable to all individuals of a pure race. As we have said before, if we cross one of the pure pigeons with another variety, even with that which may have the greatest analogy to it, their posterity will have lost for ever the distinctive characteristics of the race: the young ones of the "Glou-Glou" will be mute, and those of the "Cowled" will no longer have the cowl. Let us wait as many generations as we will, these characters never reappear, either accidentally or from any art or trouble that may have been resorted to. This would seem to prove that art has no power over this diversity of forms or qualities, and that it belongs exclusively to Nature, and from this one might reasonably draw the conclusion that these birds are true species. It is, most commonly, the male which stamps his posterity with the predominant characteristics which constitute the race; thus one might suppose that when lost by adulteration, they might be recovered by recoupling with the male parent's stock: we should deceive ourselves, if we expected any positive result from this, for a long succession of generation is necessary. Again, if we couple an improved female of a mixed breed with a male of a pure race, and when the individuals appear to have returned to their primitive character, they will always produce many young ones bearing the marks of ancient adulteration, by a remarkable, or perhaps even total, alteration in the characters of the race. The *Capuchins* might perhaps appear again with their cowl, but we should never be sure that they would transmit it to all their posterity. As to the *Glou-glous*, although having recovered their crown, and the long feathers which cover their feet, they will always be mute, and, consequently, of no value. If it happens, for example, that one of these pigeons brought back to its primitive form by perseverance, was crossed again with a stranger race, the character would be for ever lost. The young pigeons springing from this degenerate race,

although having a father or mother of the purest race, instead of recovering the primitive characteristics, would return for ever to the class of *Mixtures*, which never transmit to their posterity their forms or plumage.

FOURTEENTH RACE.

HELMETED PIGEONS (*Columba galeata*).—The feathers on the back part of the head are turned the contrary way, forming a sort of shell or helmet, from whence their French and Latin name. The figure is small, and body lengthy, of a very easy, elegant, and graceful shape. These birds rather resemble the "Nonnains" in their form and size, but may easily be distinguished from them, having no cowl.

DUTCH-HELMETED PIGEON (*Columba galeata batava*).—The eye pearled; a slight filament round the eyes; the head



and end of the larger quill-feathers of the wings and tail of the same colour, blue, yellow, or black, whilst the rest of the body is always white; the feet naked; about the size of the "Paon" pigeon.

This variety has furnished four sub-varieties, always having the large quill-feathers of the wings the same colour as the head; their figure is equally elegant with the preceding, and their plumage is always very clean and sleek.

- A. Head and tail blue.
- B. Head and tail black.
- C. Head and tail red.
- D. Head and tail yellow.

Buffon says that the sub-variety, B., "so strongly resembles the Sea-swallow, that some have given it this name with much more analogy, for this pigeon has not a round body like most of the others, but long, and very easy." Might he not have confounded this bird with our Swallow Pigeon? My principle reason for thinking so is, that his description of it agrees much better with that than this, whose helmet, nevertheless, deprives it of all resemblance to the sea-swallow.

STARLING-HELMETED PIGEON (*Columba galeata sturnus*).—It is black, rather more of a jet than the Dutch. Two bars of a greyish white on each wing, a bib of the same colour, in the shape of a gorget, yellow eye, and feathery legs. It is very productive.

RUSSIAN-HELMETED PIGEON (*Columba galeata Russie*).—Striped black, red, or blue, on the wings and tip of the tail, or chamois, or yellow, always having the upper part of the head pure white, including the upper mandible of the beak, the spot continuing the line from the middle of the eye to the shell. The eye is black, and has no filament; the feet are slightly shod. This pigeon is very productive.

SUABIAN-HELMETED PIGEON (*Columba galeata Suevia*).—This bird, originally from Suabia, almost always changes colour at the first moulting. It is small, and has a black eye; the neck is commonly spotted with white, and the feet are naked. There are some to be found which have the head, tail, and flight white; others are black, the cloak speckled in an admirable manner; there are even some existing of a rose colour; furthermore, whatever the colour may

be, uniform or varied, speckled or striped, it is always charming, and highly esteemed by amateurs. Its altitude appears to connect it with the "tourmant" pigeon, from which it probably descends. Among the varieties that this pigeon has furnished, those individuals are generally preferred, the upper part of whose head is of a pure white, and all the rest of the body resembling a silver pheasant; the black are also much esteemed: the kind of enamel which covers them forms white pearls round the neck, the bottom of which is a dull black, with a gorget, or breastplate, of a white enamel on the breast, and two white streaks forming, on their closed wings, the cross of St. Andrew. Others have the back, wings, head, and breast, black frosted with white, or, as if adorned with an enamelled lace work, with some white spots on the large black feathers of the wings. There are, also, some which, instead of a pure and unpolished black, are marked with white spots on a foundation more or less dark. A fifth variety is brown, and very much resembles the Swiss "bai doré" pigeon, but it is adorned with several rows of white pearls, from which it deserves the name of the ring-dove. M. Vieillot, from whom we shall borrow these details, thinks that one ought to make a race of the "Coquelle Souabe" pigeon, of which these would be the principal varieties. We are exactly of the same opinion as this learned ornithologist, and if we have not executed his judicious views, it is only because we would not increase our nomenclature by new names, which we should be obliged to give to these very interesting varieties; names which would, probably, cause confusion, or, at least, a wrong use of them by those amateurs who might see them described for the first time. All these birds produce freely; but they are very wild, and precipitately quit their nest when one enters the dovecote; it is also necessary to place their nest in the darkest corner of their habitation. They likewise require great cleanliness.

BEARDED-HELMETED PIGEON (*Columba galeata barbata*).—This is about the size of the Dutch, and resembles it, save in these differences,—all white with the exception of the head and tail, which are red; this last colour extending under the beak, and terminating almost in a point on the throat. This pigeon is very productive.

DEATH'S-HEAD-HELMETED PIGEON (*Columba galeata funebris*).—It very nearly resembles the preceding as to form; it has a cock's eye, naked feet, and the whole body perfectly white, except the head, which is black. It produces very well.

(To be continued.)

HERACLEUM GIGANTEUM CULTURE.

THE seeds, which require to lay torpid in the soil through the winter, should be sown at once, shallow, on rich ground; they will germinate early in the spring; and about April or May, when the young plants are about two inches high, they should be taken up with their roots entire, and transplanted to their final destination, which may be in any situation where the soil has been previously well-manured and deeply trenched, the top spit being passed through a coarse sieve. When the plant has commenced growing vigorously, weak liquid-manure may be given it with great advantage about once a week, throughout the remainder of its growth. The finest plant grown by myself this year, was one close to a pond; in which situation Mrs. Loudon says they grow to an enormous height and size; mine was not highly-manured, nor well attended to, but with this inferior cultivation, it attained a height of between twelve and thirteen feet, and a circumference of stem at the bottom joint of twelve-and-a-half inches, and some of the leaves measured within an inch or two of five feet in their widest diameter. W. C. G.

[This is from the gentleman who has kindly supplied gratuitously the seed of the *Heracleum*.—Ed. C. G.]

BEDDING GERANIUMS.

As this class of plants seems to have attracted much attention of late, may I ask the writers to your paper if they remember an old sort having leaves almost as much indented as *Fair Helen*, but a flower of a deep red or crimson.

It was never a free grower as a potted plant, but when turned out, not known at that period, did so well. It was called *Moore's Victory*; a variety certainly superior to *Rouge et Noir*, or any of that class. I should think it may still be found somewhere. I remember seeing it some five or six years ago, in the hands of an enthusiastic admirer of old plants; but, I believe, through some accidental means, he lost it again. Although, as a show flower, it cannot be expected to take its place with our *Conflagrations*, *Sunrises*, *Sunsets*, &c., yet, if restored, I durst venture to say, it will surpass them as a flower-garden ornament. I think some of the elder brethren of our craft will remember it as being contemporary with *Daveyana*, *Macranthum*, *Commander-in-Chief*, and some others, which the ups and downs of twenty years or more, have effaced from my memory; but, like many others, I should hail with pleasure the appearance of my old favourite, if restored to the place it deserves; and I am much deceived if it does not become a credit, rather than a disgrace, to its younger brethren. If, therefore, any of your readers remember this old variety, and have seen it in cultivation lately, I should feel thankful for their communicating, through your journal, such particulars regarding it as they are in possession of; or, perhaps, some of your departmental writers may yet have it, if so, by replying to my inquiries in some forthcoming calendar, they will confer a favour on an old subscriber.—S. N. V.

TO CORRESPONDENTS.

*. We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of The Cottage Gardener, 3, Amen Corner, Paternoster Row, London."

PLANT-HOUSES IN CONNECTION WITH PUBLIC WORKS (W. B.).—You have made a step in the right direction. We have no doubt but that the wasted heat from such works will one day be made available for gardening purposes. The reason why, in your present contrivance, you have had more leaves, at times, than fruit, is probably owing to your trying so many plants. The heat and close atmosphere that would suit some, would encourage too much the growing principle in others. In your contemplated arrangement, with only direct sunlight for three or four hours in the middle of the day, there will not be the same advantages for growing plants, as having a structure with glass all round in the centre of your flower-plot; but the advantage of having it in connection with your house—a very great one, so far as pleasure is concerned—and the fact that plants will thrive in such a position, with a little extra care, connected with the circumstance that there will be no comparison in expense either in the first or future cost, would lead us to adopt your suggestion, even if we should some day have a little pit or house made for the purpose of keeping this one always supplied with bloomers. We will keep the matter in mind; in the meantime, to meet your case, we will say, first, that there will be no danger to health, provided you can give plenty of air in summer, and sufficient in winter, to prevent the sitting-room being influenced by damp; and, secondly, that you must be sure that the continuous heat passing at one end, with other contrivances, will give you enough to keep from too low a temperature in winter. In summer, it will be advisable to be able to give abundance of air at that end, and, if at all hot, to have a number of vessels filled with water set on the heating medium, or near it.

CALLA ETHIOPICA (Ibid.).—This had better be divided, or rather the small suckers taken off and grown by themselves, and the stronger ones will probably reward you with blooms next spring and summer, if you keep it rather dry all the winter; but you have allowed it to stand in water too long. It is now called *Richardia Ethiopica*.

VARIOUS (H. G. B.).—*Canna*: this genus is at present in a rather disordered state, and we can form no idea of what you have got. If the suckers are very numerous remove the weakest; if not very numerous allow them to remain, and you will thus have a succession of bloom. Many, if raised early in a hotbed, will bloom the same summer in a greenhouse. All that we know require, at the least, from 45° to 50° in winter; and a medium temperature, at the least, of from 65° to 70° in summer, to bloom well. The *Guernsey Lily*, to succeed a second time, must have every encouragement given to its leaves after flowering, giving them, as long as they keep green, plenty of heat, and moisture, and light. This will, probably, ere long, receive further attention. *Mushrooms*.—You may know good ones by the fine pink flesh-coloured appearance of the gills when half-grown; by the pleasant smell, and the somewhat firm feel when held in the hand. The nearest in appearance to the true mushroom has a slimy feel, and by no means a pleasant smell. There are other tests, but we have not proved them, and these are quite sufficient for every one who has seen a true mushroom. When gathered from the fields, they should be obtained from open places. When spurious mushrooms appear on cultivated beds, we have always found that they appeared some time before the true ones, and were all swept away before they came, so that danger here is next to impossible. *Vine Preserving*.—The vine planted out in spring, if wood-ripened, will need no protection; to make sure, put a little litter over the roots, and place the lower part of the vine loosely in a piece of mat, or tie a few straws along it until spring. *Miniature Plants*.—How made to grow into a small space? By placing them in poor soil, and giving just water enough to keep them alive, with a little more than usual in summer. Many little succulents so grown obtain a sufficiency of moisture from the

atmosphere. They are very interesting as parlour-window ornaments in a group, where there is no convenience of having plants that are worth looking at, or where a great variety, however stunted, is more pleasing than quality.

FUCHSIAS—*SALVIA FULGENS*, &c. (*Fanny*).—They will do perfectly well under the stage of your greenhouse, only you must keep them rather dry, or they would commence growth, which you do not want before the spring. To assist in this, and save the drip from the geranium-pots, you may turn the pots on their sides, on the ground, and in that position there will be little danger of their getting too dry for several months to come; the damp from the floor will be sufficient for them.

HOYA CARNOSA IN A GREENHOUSE (*Ibid*).—This must be kept dry at the roots, and in as good a place as you can give it; if at all inclined to shrivel, sprinkle the leathery leaves during a sunny day.

PLANTS FOR A SMALL GREENHOUSE (*Bessie*).—We should know better how to suit you, if you told us at what time you wanted bloom most, and we would rather advise you to feel your way by growing a few things well, instead of aiming at a great collection, more especially as you manage all without help, and as *Heaths* and *Epacris* require very different treatment to *Pelargoniums* and *Fuchsias*. The following might be tried as an addition—*Cinerarias*, six of the best of last year, and varied in colour. *Calceolarias*, the same number. *Camellias*, Double-white, Beauty Supreme, Beallii, and Dark Laetii; *Azaleas*, Alba Indica, Alba Superba, Exquisita, Gleditsenii, Lateritia, and Perryana. *Ericas*, *Ventricosa*, and its varieties, *Linnæoides*, and *Wilmorei*. *Epacris*, *Impressa*, *Nivalis*, *Hyacinthiflora*, *Rubra*, and *Alba*. *Cytisus racemosus*, *Correa speciosa*, *Dioena rubra*, *Cassia dependens*, *Chorozema cordata*, and an *Utahete orange*.

HERBACEOUS BORDER PLANTS (*J. D.*).—You wish to plant Holly-hocks, Dahlias, and Roses, along borders which are only four feet wide; and if you do, a single row of each will completely fill them, and leave no room for Geraniums, Petunias, and Verbenas, the names of which you ask for. You can keep a row in front of the Roses tidy if you mix it with Geraniums, Petunias, and Verbenas. Even if you had plenty of room for them, the most you can do is to have a row of upright-growing annuals on each border. Now *Euscaridium grandiflorum* at the beginning of April; this blows till the middle or end of July, and then transplant *China Asters* to where the *Euscaridium* stood. The *Asters* you may sow about the middle of May. You might also have *Crocuses*, *Polyanthuses*, and *Auriculas*, in this row in the spring; and also patches of *Narcissus* between the Roses, and a row of mixed *Clarkia* where the Dahlias are to be. This you would sow at the end of March, and plant the Dahlias close behind the *Clarkia*—the latter will be over by the time the Dahlias begin to flower.

GERANIUMS WINTERING (*Flora Montague*).—You will have seen that we have already stated in full what should be done with your Geraniums; the half of the shoots to be cut to a few eyes in October, the other half to be left as they are till nipped or killed, in part, by the frost, and six inches of moss will keep enough of them to stand over for another year. We do not recommend to leave them out all winter. The fancy Geraniums will not keep on the drying system. Your Geranium in the *Variegated Ivy-leaf*, a beautiful thing to match such as the *Dandy*, and *Lady Plymouth*, or the *Variegated Oak-leaf*. *Lucida* is not the green form of the *Variegated Scarlet*; that form is the *Coral Geranium*; but *Lucida* is in that style much more dwarf and a far better flower.

VERBENAS MILDREWED (*Inexperienced Amateur*).—Dust the young plants with flowers of sulphur, and unless they are badly affected that will cure them. You must change the soil for your Dahlias next year, and if that does not prevent their coming "bull-eyed" you had better try other sorts.

ROSES FOR THE FRONT OF A HOUSE (*J. C.*).—Plant *Jaun Desprez*, a cream-coloured one, a fast-growing plant, and do not prune it much for the first few years. It is not a good one, however, to bud other sorts on. Take *Felicite perpetuelle* for the second, and any other Rose will grow on it; so that you may have different sorts all over the south-east side at the house. Of low evergreen shrubs, plant *Berberis aquifolium*, *Garrya elliptica*, *Andromeda floribunda*, and *Daphne Cneorum*, in your flower-beds, all beautiful flowering things, and very suitable for such beds as yours.

SIX PEARS AND PLUMS FOR A NORTH WALL (*S. H. H. W.*).—Of Pears—Midland Jargonelle, Dunmore, Fondante d'Automne, Louis Bonne of Jersey, Beurré Diel, and try Easter Beurré. Of Plums—Orleans, Greengage, Washington, Quetsche St. Martin's (?), White Magnum Bonum, Coc's Golden Drop, and Reine Claude Violette.

COTTAGERS' PLANTS (*J. L.*).—Your Hop-plant is a species of *Marjoram*, being the *Origanum dictamnus*, the Dittany of Crete, or, as it is so often called by our cottage dames, *The Hop-plant*. In their windows we often see it, but it is rare to see it in gentlemen's gardens. It is an observation too common—"I should not think of keeping such a thing as that; we can see that plant in any cottage window." Yes; and if it were not for the cottager's fondness for particular kinds of plants which do so well in their windows, we should in many cases lose sight of them altogether. The following are also cottage window favourites:—*Disandra prostrata*, the Trailing Disandra; *Saxifraga sarmentosa*, a prevailing favourite, and called by the household gardeners "The Thread of Life"; *Saxifraga umbrosa*, or London Pride; *Mesembryanthemum cordifolium*, *Semprevivum tortuosum*, *S. arborescens*, and *S. tectorum*. The last is the common English Houseleek, and generally planted upon the cool slates of the dwelling, or of some out-house, being used for many domestic medical purposes. *Caccalia articulata*, or, as many call it, "The Candle Plant," from its singularly milky-green, and mostly leafless stems being candle-shaped. *Plectranthus fruticosus*.—This plant is frequently seen in the windows about London, under the name of *Ivy Geranium*, but we cannot tell why, as its leaves are not like the ivy, but much more like the common dead nettle of our hedge-banks. Its flowers will not recommend it, as they are very small compared with the size of the plant; but those who love a flower of any kind, most love the kind that will live with them, and give them but little trouble, which is the case with this plant. It is of the soft-wooded greenhouse race—will live almost anywhere—roots readily from cuttings, and is always green, if secured from frost in winter. We should be almost puzzled to find this plant in any gen-

tleman's garden. *Fragaria indica* is another very great favourite plant, in many localities, in the cottager's window; and very pretty it looks, particularly when in fruit, with its handsome, rather large, scarlet fruit; suspended up about the centre of the window, in a nice, clean pot, and the young runners trained uniformly with threads. *Linaris cymbalaria*—the Ivy-leaved Toad-flax, or Ivy-leaved Snap-dragon. As this is not a common plant,—occasionally found upon old castle-walls, and such-like places, but abundantly on the old walls at Oxford,—wherefore, it is by many called "The Oxford Weed." It is a good-natured plant, living in almost any place, soil, or situation, we need not wonder at its being a favourite pot plant for the cottager's window. How well it does when suspended in a nice clean pot, in the window, where it will always look healthy and green throughout the year, flowering, more or less, for seven or eight months.

DAHLIAS CHANGEABLE (*L.*).—Dahlias coming semi-double one year, and quite double another year, is not of unfrequent occurrence.

RABBITS.—*G. Snipe* would be obliged by the information, which tame rabbits are most profitable.

HYACINTHS IN MOSS (*F. R.*).—Certainly the moss in which you grow them must be kept damp.

WINTERING GERANIUMS (*A Constant Subscriber*).—We think no one stupid, because he requires information which we happen to possess. If your Geraniums are the Scarlet varieties, you will find the information you require in our last number; if show varieties, see what Mr. Fish says to-day.

GEOMETRICAL GARDENS (*G. Collin*).—To give plans for these, we fear will be of little avail, but will consider the matter and the expense.

FRUIT OF RIBES SANGUINEUM (*T. M. W.*).—The fruit, though red and ripe with you, we believe is worthless.

LYONS MAGNETIC POWDER.—*A. B. F.* wishes to know where this, for destroying cockroaches, can be purchased.

FUCHSIA FOR BEDDING (*Rev. J. C. L.*).—*Coralina* is more beautiful as a single shrub than for bedding in masses. *Riccartonii* will, perhaps, suit your purpose better. If we had a greenhouse to glaze, we should use *Hartley's rough plate glass*; and 15 inches by 15 inches is a good size. The specimens of plants you enclosed are *Acacia armata*, and the orange-flowered *Lantana crocea*, both greenhouse plants.

PLANTING VINES.—*A Humble Tyro* shall have some observations shortly on this subject.

TANK (Roses).—We do not think a tank would be heated by means of a communication with the flow-pipe as you propose. We cannot promise to have drawings engraved of the hive you mention, until we have considered whether we think it worth the expense. Your other question will be answered next week.

COMMON LAND (*Guillaume*).—The best mode of enclosing land on the Surrey Hills, if the soil is light, as we presume, is to throw up a bank by means of earth taken out to form a surrounding ditch, and on the top of the bank to sow *Furze seed*. We should plant potatoes upon the ground immediately, and you could not select a better sort for such a situation, than *Ash-leaved Kidneys*. We cannot recommend trees and shrubs without knowing your object, whether for mere ornament or profit.

LIABILITY OF PLANT-HOUSES TO BE RATED (*A Subscriber*).—We are of opinion that such structures as Plant Stoves and Greenhouses, occupied by a dealer in plants or flowers, are not legally liable to be assessed for the poor rates. You will find an editorial upon the subject No. 145 (page 221, volume vi.).

RIDGE AND FURROW ROOF (*J. Price*).—This is quite applicable to your purpose. The same boiler would heat two tanks. You would not sufficiently exclude the cold without a pipe to heat the air; the same boiler would supply this also.

PIGEONS (Aes).—We cannot say, but not many more. We hope to treat of the birds you mention.

POTATO STORING (*An Old Subscriber*).—Dig them immediately, and store them under cover between layers of coal-ashes or sand.

PAULOWNIA IMPERIALIS (*M. C.*).—Japan is the native country of this hardy deciduous tree.

POTATO PLANTING (*Clericus*).—Neither to that portion which you purpose planting now, nor to that which will be planted in early spring, apply any other manure than charred refuse, or soot and salt, or both. Apply such manures at the time of planting by spreading them over the surface, and digging them in. *Red-nosed Kidneys* are too late in ripening. *Fortyfold* are earlier, and, therefore, to be preferred; but why not grow *Ash-leaved Kidneys*, or *Luker's Oxoniens*?

NAME OF PEAR (*W. N. M.*).—See what is said to-day editorially.

CALENDAR FOR NOVEMBER.

FLOWER GARDEN.

ANEMONES, plant for succession bloom. **AURICULAS** and **POLYANTHUSES**, put under shelter (See October). **BULBOUS ROOTS**, finish planting in dry weather; pot for latest forcing, and for plunging in flower-beds, &c. **CARNATION** layers, finish planting and potting; secure the pot at once from rains. **CLIMBERS** of all sorts, plant, prune, and train. **COMPOST**, prepare and turn in dry weather. **CROCUS**, pot large lumps from the borders for forcing. **CHRYSEANTHEMUMS**, against walls or fences, secure from frost. **HALF-HARDY** bulbs in borders, secure from frost and rain by a boarded covering. **DAHLIAS**, cut down after frost, and let roots remain as long as it is safe; when taken up, dry them in open sheds, &c., before storing, where frost and damp cannot reach them. **DRESS** the beds and borders, and put mark-sticks to bulbs and other roots, to guide you when digging. **EDGING**, plant. **EVERGREENS**, finish planting, b. **FIBROUS-ROOTED PLANTS**, finish dividing and planting, b. **FORK** over borders, &c. **GLADIOLUS**: all the old sorts may yet be planted; most of the new do better planted in spring. **GRASS**, cut very close the last time; keep clear of leaves; and roll.

GRAVEL, weed and roll. HEDGES, plant, clip, and clear at bottom. HOE and rake shrubberies, and bury the leaves, &c., between the plants. HOLLYHOCKS, finish planting. LAYERING, perform at intervals, if fine weather, till March. LEAVES, gather for compost, &c. MARVEL OF PERU, take up and store like dahlias. MULCH round trees and shrubs lately planted. PLANT perennials and biennials (See October). PLANTING, deciduous shrubs and trees, perform generally, and finish as early as practicable. POTTED PLANTS, for forcing, plunge in the earth of a well-sheltered border facing the sun. PRUNE shrubs and trees generally. RANUNCULUSES, plant for earliest bloom. Seedlings of them, in boxes, &c., remove to a warm situation. WEAK ROSES, prune without delay; very strong ones, delay pruning till March; tender ones, secure from frost with moss, fern, &c. SHRUBS of all kinds, plant, stake, and mulch. SUCKERS, from roses and other shrubs, separate and plant. TIGRIDIAS, save from frost as long as possible; should not be dried till January or February. TULIPS, finish planting, b. D. BEATON.

GREENHOUSE.

AIR, admit rather freely in mild weather. AZALEAS, for blooming early, keep in the warmest end of the house, and they will not lose many of their leaves; if the buds are well set and prominent, a few may receive the heat of a plant stove, to bring them in by Christmas; those once forced will come earlier of their own accord again. Those for flowering in spring and early summer keep as cool as possible, so that the temperature is above 50°. BULBS, such as hyacinths, tulips, narcissus, &c., pot for spring flowering, and so manage them that roots shall precede flower-stems. CALCOLARIAS, keep growing slowly, in an airy, moist atmosphere; seedlings, pot off, and prick into pans; cuttings of shrubby ones may now be potted, and cuttings may even be put in in the beginning of the month, in a cool, moist place. CAMELLIAS, finish setting in; and the late ones may have their buds thinned, if necessary; the earliest will now be swelling, and a little cow-dung water, cleared, and not too strong, will do them good; these should be placed with the forward azaleas. CINERARIAS, encourage the forward set to grow in a moist, gentle heat; keep those for spring and summer just moving. CLIMBERS, however beautiful, cut back to give light to the other plants. CHRYSANTHEMUMS, remove incipient roots from the axils of the leaves on the main shoots; thin the buds where too thick; encourage with manure water; and if not all in doors, have protection ready. DAMP STAGNANT AIR, avoid. FIRES, light in frosty and foggy weather, that air may be given; but give artificial heat during the day, rather than at night, unless the frost is very severe. Choose a sunny day, if possible, to light your first fire, as your fuel, &c., will be more easily dried; it is no joke to be fixed in a stock-hole behind a fire that won't burn. FURNACES and FLUES, clean out previously. HEATHS and EPACRISSES, keep in the airiest part, especially the former. GENIETAS, CYTISUSES, CORONILLAS, &c., syringe in a sunny day, and aid with manure water, to cause the bloom to open strongly. GERANIUMS or PELARGONIUMS, encourage the old plants with a good position; train into the desired shape. Nip any luxuriant shoot, so as to equalise the strength; keep fresh potted ones just moving. GOMPHOLOBIUMS, *Platylobium*, *Chorozemas*, &c. place in double pots, that they may be more uniform in moisture, as extreme dryness and extreme wet will alike be their ruin. PLANTS, keep clear from dirt and insects, by washing and fumigation. TEMPERATURE, keep from 40° to 45° at night. WATER only when necessary in dull weather: little will be wanted, unless for plants swelling their flower-buds; for these use water warmer than the air of the house. A slight dusting with the syringe over the foliage will be serviceable in a sunny morning. CLEAN pots, paths, stages; tie, train, and fresh label in bad weather. R. FISH.

FRUIT-FORCING.

AIR, admit with freedom, maintaining sufficient fires to that end. BARK-BEDS renew for the winter, sustaining bottom-heat of from 70° to 80° for a while. CUCUMBERS, keep up a moist heat of 70°, rising 10° in sunshine. HOUSE-BORDERS dress; keep a porous surface. FIRE-HEAT sustain, in order to be able to ventilate freely. INSECTS of all kinds subdue before winter. LEAVES, clean all by sponge, &c. MELONS, support a bottom-heat of 75°, and secure 70° top-heat; in sunshine rise 15°; ventilate freely. PINES re-arrange, if necessary, for the winter; keep strong linings to dung-pits, and ventilate freely. Give water henceforth very sparingly. PROTECT outside borders from wet and cold. VINES, prune, strip bark, and cleanse for forcing; begin with a temperature of 50°, by fermenting material if convenient. Late grapes, use fires freely in the day, and abundance of air. Sulphur for the red spider and mildew in all structures.

ORCHARD.

APPLES finish gathering, b. BERRBERIES gather. BUSH-FRUIT prune and plant. FIGS, pull off late fruit, b. FRUIT-ROOM, ventilate freely. MEDLARS get. PEARS, finish gathering. PEACHES and *Nectarines*, cleanse the leaves from, c. NAILS, draw where necessary, and prepare in wet weather. STRAWBERRIES plant and dress. STONES of fruits sow. TOP-DRESSINGS apply. PROTECT British Queen Strawberries, or other tender things. MEDLARS and SERVICES gather, c. PLANT all kinds of deciduous fruit-trees. PRUNE all fruits, but *Figs*, as soon as the leaves are off. VINES, protect late fruit.

ORCHID HOUSE.

AIR will seldom be required during this month; keep the air inside much cooler, because most of the plants ought now to be in a state of rest. BASKETS, plants in, should only be syringed; they ought to be so placed that the drip from them may fall into the walk. DIVISION: such plants as *Stanhopeas*, *Gongoras*, and *Acropels*, may be divided this month, with a view to increase them; give these no water till they start into growth again. HEAT: the thermometer in the warmer house should be allowed to fall to 55° in the night, and never exceed 70° by day; 65° without sun will be sufficient. POTTING will be required occasionally, even at this untoward season of the year some plants will grow, and, therefore, must be potted, because if delayed the young roots will begin to push, and then it is difficult to pot without breaking them. REAT:

keep all the plants possible at rest for the next two months; the means are, a cooler and drier atmosphere, and no more water at the root than is absolutely necessary to prevent the pseudo-bulbs perishing. SYRINGING will be necessary to plants on blocks two or three times during the month. WATER, apply sparingly, except to plants growing; to these a larger quantity may be given. T. APFLEBY.

PLANT STOVE.

AIR will still be necessary to this department; give it early in the forenoon, and close the opening by two o'clock. To sweeten the air, light the fires early in the morning, and give air accordingly; this will allow a large body of fresh air to enter the house, which will displace as much foul air. CUTTINGS of stove plants should all be potted off early this month if rooted. BULBS should now generally be at rest; keep them dry and moderately cool, to prevent a too early excitement. FORCING-FLOWERS for this department should be commenced slowly, early in the month, such as *Azaleas*, *Lilacs*, *Laburnums*, *Rhododendrons*, *Roses*, &c. These will flower in December or January. WINTER-FLOWERING PLANTS will now be showing their flowers. They should have a moderate supply of water, and occasionally a watering with weak liquid-manure. Keep every part of the stove perfectly sweet and clean; remove all decaying leaves as they occur; stir up the surface of the soil in the pots, to prevent moss and weeds from appearing. In this month, a supply of the different soils, manures, and vegetable mould, should be procured. T. APFLEBY.

FLORISTS' FLOWERS.

ANEMONES may yet be planted, excepting the finest double ones. AUCUBAS and POLYANTHUSES; no delay must take place in putting these into winter quarters, if not already done. Scatter occasionally amongst the pots a layer of very dry ashes, which will absorb the moisture. CARNATIONS and PICOTEES, finish taking off the layers, and potting them; place them in cold frames, giving plenty of air every day. DAHLIAS, cut down when frost bitten, and cover the roots with a small hillock of coal-ashes, or take them up at once, and reverse the roots, to allow the moisture to run out of the hollow stem. Number every root, and put them by in a dry, cool place, where no frost can reach them. FUCHSIAS, done blooming, prune in, and give no water to, for a month. HYACINTHS, finish planting, both in pots and beds. LILIES, both *Spanish* and *English*, plant in a rich soil and open situation. NARCISSUS, pot and plant out in the beds. PINES plant out early; fasten firmly, to prevent the frosts from drawing them out. RANUNCULUS-BEDS prepare. *Turban* variety plant in beds and pots, the fine-named varieties do not plant till spring. TULIPS, plant on or about the 10th of the month; choose a dry day for doing this. VERBENAS, take up and pot, dressing-off the straggling branches; their cuttings shelter from early frost. All FLORISTS' FLOWERS in FRAMES and PITS keep moderately dry, clear of weeds, and decaying leaves. Search for SLUGS and other vermin daily. T. APFLEBY.

KITCHEN GARDEN.

ARTICHOKES, winter dress. ASPARAGUS-BEDS, dress; attend to that in forcing, and plant in succession. BEANS, plant a good main crop toward the end of the month. BEET (Red), dig up for storing. BROCOLI, lay down or remove to other warmer situations with good balls of earth; take care not to injure their leaves. CABBAGES, plant or prick out into nursery-beds. CARDOONS, earth up, b. CARROTS, dig up and store, b.; leave or plant out for seed. CAULIFLOWERS, prick out in frames, &c., for winter protection, pay particular attention to airing in all fine weather, both hand-glass crops and otherwise. CELERY, earth up in dry afternoons, having the earth all forked up previously. COLCOWTS, plant. COMPOSTS, prepare, and always have a supply in the dry for immediate use. CUCUMBERS, attend to in forcing. DRAINING, attend to where required. DUNG, prepare for hotbeds. EARTHING-UP, attend to. ENDIVE, tie up for blanching or otherwise; pay particular attention to protection. GARLIC, plant. HERBARY, clean, &c. HOEING, attend to; on a fine afternoon never lose a favourable opportunity for this or any other kind of work. HORSE-RADISH, dig up and lay in the prime for use, and replant. HOTBEDS, make for salading, &c. JERUSALEM ARTICHOKE, dig up and store. LEAVES, continually collect into some corner for future use. LETTUCES, plant in frames; attend to those advancing. MINT, plant; force in hotbed. MUSHROOM-BEDS, make; attend to those in production. ONIONS, in store, look over; (Potato), plant. PARSLEY, plant some in a frame for use in snowy weather. PARSNIPS, dig up and store, b.; leave or plant out for seed. PEAS, of the best early kinds, may be sown toward the middle or end of the month. POTATOES, attend to those in store, or dig up, should any remain out. RHUBARB, clear away decayed leaves, and top-dress; also pot-off any number of plants that may be required for early forcing, to bring into the forcing structure as wanted. RADISHES, sow, in hotbed. SALSIFY, dig up and store. SCORONERA, dig up and store. SEA-KALE, pay particular attention to the removing of all the decayed leaves, &c.; top-dressing, covering up with fermenting materials, or other modes of forcing. SEEDS, dress, and store. SHALLOTS, plant, b. SMALL SALADING, sow; sow in hotbed. SPINACH, thin, earth-stir, and keep clear of decayed and fallen leaves. THINNING, attend to. TRENCH, ridge, &c., vacant ground. TURNIPS, attend to thinning out, or hoeing the late sown crops, and should the weather be inclined to set in very severe, any number of turnips that are full-grown, may be taken up and stored for winter use. Spading-in is often better than the hoe. Always COVER-UP a little earlier on the appearance of frosty nights. Also look over your BROCOLI quarters of a frosty-looking evening. See if any are fit to cut, or if their leaves need to be broken down over the heads as a protection. T. WEAVER.

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WEEKLY CALENDAR.

M	W	D	NOVEMBER 6—12, 1851.	WEATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
				Barometer.	Thermo.	Wind.	Rain in In.						
6	Th		Cherry leafless.	30.100—30.061	57—36	W.	—	4 a. 7	24 a. 4	3 48	13	16 14	310
7	F		Hooded Crow comes.	30.113—30.032	58—46	S.W.	02	6	22	4 56	14	16 11	311
8	S		Birch leafless. [BORN 1841]	30.153—30.009	53—29	W.	01	7	20	rises.	15	16 7	312
9	SUN		20 SUNDAY AFTER TRINITY. P. WALES	30.315—30.268	53—50	S.W.	—	9	19	5 a. 6	16	16 3	313
10	M		Primrose blossoms again.	30.248—30.183	58—46	S.W.	—	11	17	5 36	17	15 57	314
11	Tu		St. MARTIN. Hunting mute.	30.108—30.009	58—48	S.W.	—	13	16	6 11	18	15 51	315
12	W		Wood-pigeons flock.	30.099—30.080	56—26	N.W.	—	14	14	6 56	19	15 44	316

In St. James's Church, Piccadilly, locked up from general utility by being Latinised, is the following monumental inscription—

Here lies interred

BENJAMIN STILLINGFLEET

To whom the sciences afforded a perpetual delight;

More especially as Religion was the first object of all his studies.

From his learned grandfather, Edward Stillingfleet,

Bishop of Worcester,

He drew his love of letters,

And veneration for the Christian faith.

He departed the 15th of December, 1771, aged sixty-nine.

The biography of Mr. Stillingfleet, who is thus justly commemorated, offers many points of warning, as well as of example worthy of imitation. Prominently among which, is the fact that he was one of those most pitiable of mankind, a gentleman by birth, without a competency, and without a profession. Too truly can such a man say, "I cannot dig; to beg I am ashamed," and too often do they have recourse to measures similar to those which he adopted whose words we have quoted. It was not so with Benjamin Stillingfleet. Left the only son of a widowed mother, and that mother in straitened circumstances,—for her husband was the deservedly disinherited son of Bishop Stillingfleet,—he strove to afford her that support which her husband had failed to secure. At the age of twenty-two, after obtaining a Bachelor's degree at Cambridge, he became tutor to the only son of Ashe Windham, Esq., of Felbrig, in Norfolk, and, from his salary, spared much for his mother's comfort. Nor was his love of his family narrowed to her alone, nor did his hand close with her life.

He possessed a mind truly noble, and even in the times of his greatest embarrassment, preserved a high spirit of independence, and commanded respect from all with whom he had intercourse. He adapted his style of expense to his income, and declined pecuniary assistance from the most intimate of his friends; yet the narrowness of his circumstances, and the habits of economy, which he was compelled to practise, neither contracted his mind, nor rendered him unfeeling to the distress of others. His humanity was unbounded, and his affection for his relations displayed in the most active and benevolent exertions. Even under pressing exigencies, he always assisted the family of his sister, Mrs. Sabourn; and at one period gave fifty pounds a-year from an income of not more than an hundred. After his income was increased by Mr. Windham's legacy, and the place given him by Lord Barrington, he did not relinquish his habits of economy, nor change his mode of life, but devoted his superfluities to the service of his family, and to works of benevolence.

Whilst tutor to Mr. Windham, he strove strenuously to obtain independence in a Fellowship of Trinity College. In this he failed; and it is to be feared that the failure was due to its Master, Dr. Bentley, who, forgetting the obligations he had received from Mr. Stillingfleet's father, is said to have barred his successful opposition to his election, by observing, "Mr. Stillingfleet is too fine a gentleman to be buried in a college." The next blow before which he had to bow was still more keenly felt, for when the lady to whom, for ten years, he was attached by mutual pledges, snapped them asunder, and sank into a wealthier alliance, we are told he became an altered man, and an indifference to the avocations of life came over him, which he never afterwards was able to shake off. What he suffered, these verses from his pen seem to tell—

Oh! save me from the jilt's dissembling part,
Who grants to all, all favours but her heart;
Perverts the end of pleasing, for the same;
To fawn, her business; to deceive, her aim.
While all are pleas'd, and wretched soon or late,—
All but the wise, who see and shun the bait.

Passing over Mr. Stillingfleet's travels on the continent, we next find him settled in a little cottage near Foxley, in Herefordshire, for the sake of being in the vicinity of the family of his friend, Mr. Price, father of the more widely-known Uvedale Price, so connected with our literature or picturesque gardening. Writing from his cottage in 1747, he says:—"I did not comply with your kind invitations in the summer, for I am absolutely unfit for company by my bad health; especially when I alter my way of life in the least. The little enjoyment I have of health is owing to the sweat of my brows; no sooner do I leave off working many hours in the day than I relapse again. You thought, no doubt, what I said to you some time ago about my being turned gardener, was all exaggeration; but believe me, it is literally true: that is my employment from morning to night."

This occupation naturally led a man of so inquisitive and contemplative a turn to the examination of plants. From the Bishop of Durham (Dr. Barrington), who at an early period of life frequently accompanied him in his excursions, we learn, that in the commencement of his botanical studies, he had recourse to Gerard's Herbal, Parkinson, and Ray; and his knowledge of the learned languages enabled him also to consult Theophrastus and Dioscorides. But he was afterwards led to the study of the more perfect, simple, and comprehensive system, which was about

this time promulgated by Linnæus. He soon became a master and zealous partizan of the new method, and was called by the opponents which it found in England, as well as in other parts, one of the body-guards of Linnæus.

Mr. Stillingfleet thus briefly traced the peculiarities of each of the botanical systems which had been successively in vogue:—"Theophrastus sketched the classes of plants, and had a glimmering of the genera; Gesner and Cæsalpinus established the genera, and had a glimmering of the species; Tournefort, Ray, and Morison, established the species by the fruit; Tournefort added the flowers; Boerhaave the stamens; Linnæus took in the style. Among them all plants are ranged according to the characters taken from all the parts."

This brings us to the publication which especially entitles Mr. Stillingfleet to our notice—*Miscellaneous Tracts on Natural History*, and its contents shall be particularized by his biographer, Mr. Cox:—"The work itself contains translations of various tracts from the writings of Linnæus and his pupils, read as Theses in the University of Upsal, which were at once calculated to develop his principles, and to point out new ways for the improvement of natural history. The first is the *Oration on the Benefit of Travelling in our Native Country*, delivered by Linnæus when he was appointed Professor of Physic, 1741. In this oration the learned Professor traces the general benefits of travelling, more particularly to the physician and naturalist. He reprobates the custom of early travelling, and urges the necessity of laying a previous foundation at the University, without which preparation every thing appears trite and uninteresting. He gives just and sensible rules in regard to the pursuit of knowledge, and the method of observation. He adds, that by knowledge thus acquired at home, we can alone be qualified to improve our own customs by those of other nations, and to render ourselves useful to our country. He gives a rapid though modest sketch of his own studies, labours, and travels; and after tracing the benefits which he had derived from them, he bursts into an animated tribute of gratitude to the divine Being, which we here quote as a testimony of his piety and zeal. 'First to thee, Oh omnipotent God, I humbly offer up my thanksgiving for the immense benefits that have been heaped upon me through thy gracious protection and providence. Thou from my youth upwards hast so led me by the hand, hast so directed my footsteps, that I have grown up in the simplicity and innocence of life, and in the most ardent pursuit after knowledge. I give thee thanks that thou hast ever preserved me in all my journeys through my native and foreign countries, amidst so many dangers that surrounded me on every side; that in the rest of my life, amidst the heaviest burdens of poverty, and other inconveniences, thou wast always present to support me with thy Almighty assistance; lastly, that amidst so many vicissitudes of fortune to which I have been exposed, amongst all the goods and evils, the joyful and gloomy, the pleasing and disagreeable circumstances of life, thou endost me with an equal, constant, manly, and superior spirit on every occasion.' The second Treatise is an interesting disquisition *On the Economy of Nature*, by Isaac Biberg, tracing the means of propagation, preservation, and destruction, which may be observed throughout the mineral, vegetable, and animal kingdoms. The third is a *Tract On the Foliation of Trees*, and the fourth is a *Treatise On the Use of Curiosity*, by Christopher Gedner. It is intended to excite and encourage the most minute researches into the secrets of nature, by pointing out some circumstances, which, though apparently insignificant, are productive of the most important benefits, and shewing, that throughout the whole economy of Nature, no creature or inanimate substance is unnecessary; but that all, however noxious or inconsiderable, are productive of important advantages, either immediate or remote. The fifth is a sensible *Treatise On the Obstacles to the Improvement of Physic*, and the sixth, intitled *The Swedish Pan*, was written by Nicholas Hasselgreen in 1745, and treats on different plants as the proper nutriment of different animals. The work was closed by a Treatise, written by Mr. Stillingfleet himself *On the English Grasses*, in which he reprobates the slovenly method adopted in that branch of husbandry, and points out the proper species for the improvement of the turf, and the nourishment of cattle. The subject is treated in a methodical and judicious manner; and to Mr. Stillingfleet the British public is indebted for the introduction of most of the trivial names now in use, and the principal part of that knowledge which has been acquired of this valuable species of plants. In the second edition of these *Miscellaneous Tracts*, which Mr. Stillingfleet published in 1762, the *Observations on Grasses* were accompanied by plates of the different species recommended by the author, most of them well-drawn from nature by his lamented and excellent friend Mr. Price, of Foxley. The piece was also improved with considerable additions. On the subject of this *Treatise on Grasses*, Mr. Curtis sensibly remarks:—"Mr. Stillingfleet was not one of those speculators who promulgate precepts which they do not practise, and lay down rules which they do not follow. From his own manuscripts and writings, I find that he not only gave to the public his *Observations on Grasses*, and recommended his friends to pursue his rules, but himself employed his scanty means to reduce his theory to practice, by laying down lands, and selecting seeds. An instance of this kind is recorded by Kent in his *Hints to Gentlemen of Landed Property*. Meadow and pasture land is oftener neglected than ploughed ground, notwithstanding it generally admits of a greater pro-

portion of improvement. The best grasses cannot be collected at too great an expense; for I have seen a small spot of land in the middle of a large piece, which was laid down twelve or fourteen years since by Mr. Stillingfleet, on the estate of Mr. Price, of Foxley, in Herefordshire, with choice seeds, at the same time when the remainder of the field was laid down with common seeds; and this spot is considerably better than the rest; it not only appeared so to my judgment, but was allowed to be so by Mr. Price's bailiff, who was well acquainted with its produce. From Mr. Stillingfleet's experiments, and my own observations, I am clearly of opinion that any person who has cultivated land for grass, may improve it by this method of laying it down, to a much greater degree than he can in the common way.' In the second edition of the Miscellaneous Tracts were also inserted three *Calendars of Flora*; one by Berger for Sweden; a second for England, compiled by Stillingfleet himself at Stratton in Norfolk, the seat of his friend Mr. Marsham; and the third for Greece, extracted from the History of Plants by Theophrastus. These Calendars were intended to exhibit the progress of the seasons in different climates, from the flowering and leafing of plants, the periodical migrations of birds, and other natural occurrences. From hence it was intended to form a collection of facts, in order to ascertain some fixed laws of nature, by the observance of which the sowing of grain, and many other operations of rural economy dependant on the seasons, might be better regulated than by the ordinary rules and customs."

We must conclude our notice, and it shall be in the words of those who admired Mr. Stillingfleet just in proportion to their intimacy. Gray, the poet, speaking of him, says:—"I have lately made an acquaintance with this philosopher, who lives in a garret here in the winter, that he may support some near relations who depend upon him. He is always employed, consequently (according to my old maxim), always happy, always cheerful, and seems to me a very worthy, honest man; his present scheme is to send some persons, properly qualified, to reside a year or two in Africa, to make themselves acquainted with the climate, productions, and natural history of the country, that we may understand Aristotle, Theophrastus, &c., who have been heathen Greek to us for so many ages; and this he has got proposed to Lord Bute, no unlikely person to put it into execution, as he is himself a botanist."

To this, Sir Uvedale Price adds—"The habits, manner, and person of Mr. Stillingfleet at the later period of his life, I still recollect with peculiar pleasure and interest. He wore a full dress suit of cloth of the same

uniform colour, with worsted stockings, usually blue,* and a small brass hilted sword peeping through the skirts of his coat. His wig was decorated with several rows of formal curls, as exhibited in his portrait. Those who knew him in early life, speak in the highest terms of the fascination of his society; and age did not rob him of this charm. His address was easy, polite, and captivating; his manner modest without bashfulness; his voice touching and melodious; his eye expressive, and his smile indicative of all the benignity of his mind. In conversation he was uncommonly pleasing and insinuating, catching the tone of the society, and trifling, even with children, with the same ease and pleasure as he conversed with persons of science and literature.

"Almost the first and most lasting impression which I received of any person next to my parents, was that of Mr. Stillingfleet; and it is displaying, perhaps, not the least amiable part of his character, to mention the satisfaction with which myself, my brothers and sisters, as well as others of our age, heard his name announced, and the delight with which we crowded about him, realising the beautiful picture drawn by Goldsmith:—

"E'en children follow with endearing wile,

And pluck his gown to share the good man's smile."

"This sentiment of love ripened into gratitude and veneration at a later period, when I call to remembrance the information which his conversation afforded, and the condescension and kindness which he employed to overcome the timidity of youth; the skill with which he drew forth my early acquirements, and the affectionate solicitude with which he directed and encouraged my literary pursuits."

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 51.5° and 37.1° respectively. The greatest heat, 63°, occurred on the 12th in 1834, and the lowest cold, 19°, on the 11th, in 1848. During the period, 85 days were fine, and on 83, rain fell.

* From this singularity of dress, some have derived the epithet of *Blue Stocking Clubs*, now given to most literary meetings. "Mr. Stillingfleet almost always wore blue worsted stockings, and whenever he was absent from Mrs. Montague's evening parties, as his conversation was very entertaining, the company used to say, 'we can do nothing without the blue stockings,' and by degrees the assemblies were called *Blue Stocking Clubs*, and learned bodies *Blue Stockings*."—*Bisset's Life of Burke*.

WHILST we go a great way towards agreeing with Mr. Stevenson, that "nothing would have a greater tendency to improve the circumstances of the much-neglected working-man than building for him a home of comfort and convenience," yet we totally dissent from his intimation that "it is unquestionably true that human lives are considered only of secondary importance where feudal grandeur, preservation of game, exclusive privacy, and broad acres, are the ruling passions of titled and monied men." We dissent from this because we know too many instances to the contrary, and in no one is the example more apparent than in Prince Albert, who, though he enjoys "grandeur," "game," "privacy," and "broad acres," yet Mr. Stevenson informs us has ordered a copy of the book from which we have quoted, "to be added to the Royal Library at Buckingham Palace." This book is entitled *The Cottage Homes of England, or suggested designs and estimated cost of Improved Cottage erections*, and we can unreservedly recommend it to the attention of our readers, for there is much more good sense and valuable information in it than we expected from a book bound in such a fierce-coloured cover, and containing vocative sentences, beginning with, "O, ye landlords of England." Such offences against good taste had better be corrected if the work ever reaches to another edition. It merits a sale to require this, for the plans combine comfort, healthfulness, and economy.

Another volume, upon the same subject, is also upon our table, entitled, *Hints to all about to Rent, Buy, or Build House-Property*, and its author is "Francis Cross, architect and surveyor." It is of very unpretending size and appearance, but it is full of "Hints," which no one should neglect who is about to become either the tenant or the purchaser of a house. It points out everything requiring attention, from the foundation

to the roof, and from the kitchen-range to the chamber-door-handle. Happy will be the man who tests the house he examines by these "Hints," and then he need not fear to be the original for such a sketch as the following:—

"The house in question was one in a row, building or built, whitened outside in imitation of stone. It was No. 2, —No. 1 was not quite finished, for the windows were still stained with whitewash and colouring. No. 2, the one in question, was complete, and the builder asserted was ready for immediate occupation. No. 3 was not advanced so far as the others—they were but carcasses. 'Why,' said I, 'we shall be smothered by lime-dust and lime for the next two years.' 'Don't be alarmed,' said the builder, 'every house will be finished this winter.' 'Is not the entrance handsome, observed my wife, 'and neat and clean?' To this I had no reply to make, as it certainly looked neat and clean. We went over the house, examined the rooms, which were all allotted by my wife, and of which the builder took good note; finally we looked at the kitchen, which was admired, as also the coal-cellar, pantry, scullery, and dust-hole,—all was declared so compact and nice. 'Don't you think it charming?' said my wife. 'It seems to do very well, but requires consideration,' I observed. 'I can't give you long,' observed the builder, 'two other parties are after it.' 'Take it,' said my wife, 'so also chimed my daughters. 'What is the rent, then?' '200 guineas a year!' 'and the taxes?' 'a mere trifle!' 'What term do you let for?' 'Seven, fourteen, or twenty-one, at the option of either party,' the builder answered. 'I will take it for three years,' I said, and the builder seeing he would not be able to make me take it for a longer term, assented.

"We commenced moving, and shortly afterwards I noticed sundry observations that betokened that my wife thought of giving a house-warming, or, as she called it, 'a little dance.' Well, the evening came, the ball commenced, and the house-warming ended in house-breaking. When the four-and-twenty couple were going the grand round, a great noise took place below;—'What is the matter?' said my wife. 'Ma'am,' said Mr. Gunter's man, 'the ceiling of the dining-room has fallen down, and spoilt the supper table.' Here was a catastrophe! We went down stairs, and, sure enough, the mortar had broken the jellies, paties, cold meats, creams, trifle, all into one mass of ruin, mixed with lime and hair. It presented all the appearance of a Swiss avalanche in

miniature. 'These new houses won't bear dancing in,' said Mr. Gunter's man.

"The next day I sent for the builder, and showed him what had taken place. 'Dear me! I am very sorry; but you had too many people over head; that's very clear.' 'Very clear! why, we had a ball,' I said. 'No wonder, then,' observed the builder. 'What, then, are we to give no balls,' I asked. 'Why, you see, Sir, we don't build private houses now-a-days as ball-rooms; we could not, Sir, the price of timber is so ruinous, and the additional strength would never pay us.' 'Mr. Builder, I expect you to make the ceiling good.' 'Much obliged for the preference; I will do it as reasonable as any one,' replied he, bowing; 'I will send in the men directly.' At the end of a month I had to pay a bill, more than the ball and supper cost.

"Shortly afterwards I thought I would have paintings hung; so I sent for the carpenter. I pointed out a place to the man on the steps; 'but,' answered he, tapping with his hammer, 'can't find wood, Sir! No, Sir, there is nothing to nail to; but there never is no wood in these new houses.' Confound your new houses, thought I. 'What's the house built of then?' said I. 'Lath and plaster,' said the man, tapping right and left.

"The next annoyance was a bad smell from the drains. The bricklayer was sent for; he came, and pronounced them choked, and added, 'they make the drains in these new houses so small, sir!' Well, the whole of the basement was taken up, and £40 expense incurred before the nuisance was abated.

"I hoped now all was right; but I heard a conversation between my wife and eldest daughter which gave me some satisfaction.—'It is really very awkward, one don't know where to put anything; there is not a cupboard or stow-hole in the whole house.' Well, then came some gales of wind and heavy showers of rain; slates blew off, and rattled up and down all night; complaints came from the attics; one had the bed wetted quite through, from the water dripping through the ceiling; another had put a bason to catch the leak;—all declared the roof a sieve. I sent again for the builder, who told me I must expect the slates would move a little after such heavy gales, as they were so light, and the wind got under them. 'You know, sir,' continued the builder, 'we can't put a heavy roof on brick-and-a-half walls.' 'Brick-and-a-half walls,' said I, 'why that is not surely safe, sir!' 'Not quite, sir, if this was a single house; but then in a row one supports the other.' Thank heaven, I took it but for three years, and six months are gone. I thought of my old house I had left, to meet the fashionable wishes of my wife, and sighed to become its inmate once more."

GARDENING GOSSIP.

THE *Hollyhock* is now taking a lead among the permanent embellishments of the shrubbery, and the large borders of many lengthy approaches. The distance from which they can be seen, and the decided character of their pyramidal spikes, especially fit them for towering up among evergreens, while the vast improvement made in their colours gives them a fine effect. Mr. Chater, of Saffron Walden, has taken the lead, as not only a raiser of fine varieties, but the purchaser of the best wherever he can find them. Mr. Parsons, who has been exceedingly fortunate this year, has disposed of his novelties to Mr. Chater. A few hints as to the best in cultivation will assist the beginner. Some of the late Mr. Baron's still hold their ground, his *Magnum Bonum* and *Rosea grandiflora* have not yet been surpassed; Chater's *Walden Gem*, *Comet*, *Mr. C. Baron*, *Spectabilis*, *Rosy Queen*, *Enchantress*, and *Obscura* stand forth boldly among the best; Rivers's *Sulphurea perfectior*, *Donnis*, and Laird's *Mr. David Wedderburn*, and *Watford Surprise*, alias *Elegans*, alias *Model of Perfec-*

tion, for the same flower bears three names, make up a dozen of the best formed flowers we have. Among Mr. Parsons's new ones, *Triumphant*, *Saffranot*, *Joan of Arc*, and *Pillar of Beauty*, are the best. Bircham's *Mitior*, *Yellow Model*, *Pourpre de Tyre*, and *Penelope*, are new and good. Black's *Charles Turner*, and Chater's new one, *Lady Braybrook*, are worthy of a place. Bragg's *King of Roses* is his best, and *The Duke of Wellington*, raised in Scotland, and rather frowned upon, should be added to the collection, although it will not be so easy to obtain.

With regard to the culture of the *hollyhock* for ornamental purposes, nothing more is required than good strong soil. Wherever a rose will grow well the *hollyhock* will flourish. If the size of the individual flowers be an object, the buds must be thinned out; and if spikes of half-a-dozen blooms are required for exhibition, the spike must be shortened. Liquid manure, at the time the bloom is advancing, will be found to assist the size, but *thinning out the buds is indispensable*. The *hollyhock* should be dry in winter, and if a plantation be depended on as a feature, the plants should be parted and potted in the autumn and planted out in the spring. In ordinary shrubberies and borders, where they are to rear their graceful spikes above the foliage of shrubs, see that they have plenty of moisture, for in plantations of trees and shrubs they have not even the rain to depend on.

A nurseryman who, perhaps, restricts his sale by the announcement, ventures to advertise about *half a dozen Dahlias*, which he calls first-class flowers—not his own, but selected from *all that are announced*; so that, if he implies anything, it is *that there are no more first-class flowers coming*. He mentions *The Scarlet King*, *Sir Frederick Thessiger*, *Dr. Frampton*, *Sir Richard Whittington*, and among fancies, *Triumphant* and *Laura Lavington*. We bear witness to the quality of all these flowers, and will concede that they will not be beaten this season, but we hope to see more, or it will be a poor season.

The principal drawback as regards the *Dahlia* is its uncertainty. *The Queen of the West* was shown last year a splendid white, half-a-dozen blooms at a time, yet few, if any, of the growers would cut a single flower to show. Our plant did not come into bloom until the shows were over, and then there were indications of good quality; so that next year we shall try to be early. It is difficult to believe that six unexceptionable flowers can be shown of a really worthless variety, so that we have some hope that we shall be more fortunate next season; at present nobody likes it, because nobody would show it. There are two whites this year—*Ariel* (Turner's), and *Una* (Keyne's), but although they have both been shown well, yet whites have deceived us so often, that we want faith in them. Nevertheless, growers are not sufficiently indulgent the first year. The *Dahlia* is an uncertain flower—our best models are the most so. If we plant out a single plant of the *Duke of Wellington*, we feel disappointed if we do not cut a flower all the season, but do we throw it away? No,

we plant out two or three another year. Why then are we so ready to condemn a new one, because it disappoints us. Give us a flower that is a good model, when we can catch it, however seldom that may be, and not one that is more first-rate, though always to be had. The raiser of the best Dahlia of the season. *Dr. Framp-ton*, puts out six or eight varieties, we forget exactly how many, but he makes an allowance for those who take all, by sending the whole for £2. The separate prices vary. Some are 10s. 6d., some 7s. 6d., and some 5s., and he feels as confident upon the whole, as he does upon any one.

E. Y.

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.



BORDERED-LIPPED TRICHOPIA (*Trichopilia marginata*).—*Gardeners' Magazine of Botany*, iii. 185.—This is the *Trichopilia coccinea* of gardens. The genus *Trichopilia* consists of a few orchids from their intermediate native regions of the order in Mexico, Guatemala, and onwards probably to the Equator. The subject of this biography was discovered by M. Warczewicz, in 1849, on the heights of New Grenada, whence, we believe, it was sent to England, to be distributed under the hammer of Mr. Stevens, at his great emporium in King-street, Covent Garden, so that it reached the hands of several cultivators at the same time, but the first successful bloomer of it was J. H. Schröder, Esq., of Stratford, near London. He exhibited the plant in flower at the May gatherings of the great societies. When the plant is not in flower it might easily be mistaken for one of those closely-grown, bulbed *Maxillarias*, from the highlands of Mexico, and similar parts, although the plant itself, in its botanical affinity, is long removed from the *Maxillars*, being in the section represented by *Brassia*, and the next genus to *Aspasia*.

The genus was founded by Dr. Lindley on *Trichopilia tortilis*, a Mexican species; and the name is derived from *thrix*, a hair, and *pilion*, a cap, in reference to a process on

the top of the column which covers the anther like a cap, and which is guarded by three tufts of hairs. *Marginata*, the name of the species, refers to the whitish border on the labellum or lip of the flower, the rest of the lip, or central parts, being "a deep purplish rose, or plum-colour, shaded off, and with veins radiating into the broad, white, recurved margin." The other parts of the flower, called sepals and petals, spread out wide, in narrow bands, much twisted and crisped, as in the original species. The flower-scape issues from the bottom of the fleshy bastard, or pseudo-bulbs, and spreads out laterally or downwards, and carries only one flower on the top. The pseudo-bulbs are two-leaved. Altogether this plant is neat and compact looking, and the flowers spreading out from below give it a very gay aspect when hanging from a block. All orchids are *gynandrous*, that is, the male and female organs grow in one body, called the column. Plants so constructed form the twentieth class in the Linnæan system, *Gynandria Monogynia*.—B. J.

[For the culture of the genus, see what Mr. Appleby says to-day. There is another species, *T. Galeottiana*, with yellow flowers, but which is known only by the description in Richard and Galeotti's *Orchidaceæ Mexicanæ*.—Ed. C. G.]

THE FRUIT-GARDEN.

BOTTOM-HEAT: THE PINE-APPLE, &c.—The time has now arrived when preparation must be made for a long and severe winter. Not that we would presumptuously assume the spirit of prophecy, but it is always the practice of men of long experience, and, consequently, possessing a due amount of caution, to provide for the worst. And here it is that young beginners are apt to burn their fingers; their bottom-heats prove too flimsy; their flues are "caught tripping" in mid-winter through the want of a thorough cleaning and repairing just before the commencement of frost; their fermenting linings prove insufficient for want of a thorough bottoming at the same period; they are short of mats, straw, or other covering, not having anticipated so hard a time; for "who could have expected it?" These omissions, and, indeed, many others, young beginners are peculiarly liable to; and as such remarks are of a timely character, they may not be without their use.

In these days many good gardens possess tank-heated structures, that is, hot-water bottom-heats; with these, for the present, we have nothing to do. The majority, it is to be feared, use fermenting materials, and to such special attention is now requisite.

The chief thing previously to the commencement of winter is to secure *enduring* bottom-heats; and where tan principally is used, this is a somewhat difficult affair, without "burning," as it is termed. Now, as some persons may not know what a "burning heat" is, in the gardening acceptation of the term, we may observe, that, ordinarily, any point over 90° at the root is either productive of that result or closely approximates it. Not but what many plants from exceedingly hot climates will endure many degrees more bottom-heat at certain periods; and, indeed, to many it may be, for awhile, necessary: this, however, is the exception. We are told, for instance, that the *Nelumbium* enjoys a water temperature of 113° at Lantao in China, whilst Sir John Herschel noted down 150° at the Cape of Good Hope on the 5th of December. As a set-off, we are told that the mean temperature of the soil at Calcutta is about 80°. The mean temperature, however, is not a very good guide to the British gardener; and these things are merely named by-the-way to point to the varying condition under which the Almighty has placed the vegetable creation.

The deficiency of the solar light in Britain, as compared with those countries where the Pine flourishes, must be taken fully into account by the Pine-grower. This it is in the main, which induces a judicious cultivator to modify extremes, and to see that his bottom-

heat, at all periods of the year, bears a just relation to the light of the period.

This, indeed, may be termed the pivot on which the whole turns; and as the early winter's light is very frequently little more than a twilight, very moderate bottom-heats suffice, unless it be for what is termed early forcing, when a stronger stimulus sometimes becomes necessary.

Of all the materials for a fermentative bottom-heat, nothing that we have ever met with equals tree-leaves, more especially those of the oak. Few, however, can obtain the latter, yet most persons, by careful collecting, may obtain a tolerable amount of shrubbery leaves, or the leaves of deciduous trees in general. As for the argument of their being needed for the shrubs, whilst its validity may be admitted in a general way, it may readily be urged that it is very easy to apply the leaves in a rotten state, after being used twelve months for bottom-heat purposes; and every man of system may take care that his shrubs are not robbed ultimately. Our good friend Mr. Beaton must not be cross, therefore, if he find us raking, with some assiduity, beneath his pleasure-ground trees and overgrown shrubs some fine morning in the early part of November.

It was before observed, that in the renewal of bottom-heats in the month of November, the main point is to secure a long-enduring warmth; and it is almost unnecessary to add, that this can alone be insured by the use of materials which do not speedily decompose. We have turned up leaves from the bottom of pits (which had lain for more than two years) apparently as fresh as the day they were placed there. This, of course, was, in great part, in consequence of their comparative exclusion from the air, and the absence of a very high degree of fermentation; for those in the bottoms of pits do not ferment so severely as the strata higher up. The best plan to provide a first-rate material of this kind is, after collecting a given amount of the leaves at a proper spot, to mix them with fermenting manure. This manure (fresh, of course) should be provided a fortnight beforehand, and should be turned twice, and shaken well to pieces before blending it with the leaves. About four cart-loads of the new leaves, *thoroughly* mixed with one cart-load of the dung, will make a mixture combining every requisite for a wholesome and long-enduring bottom-heat.

Now, where bottom-heats are required to last many months, what is termed "bottoming" should, if possible, be had recourse to: that is to say, the old material should be disturbed to the very bottom, provided the Pines, or other things on the surface, can be removed. About the removal of Pines we must offer a few remarks. It is quite certain that no man can break up a pit of Pines without causing considerable damage; indeed, this, and the amount of labour involved, has been the cause of the deviations in cultural practices during the last twenty years. In former days, when small shifts were used, and the dung-bed was in all its glory, the amount of labour over a pit of Pines, during twelve months, was too serious an item to be faced in a "balance sheet." Hence the adoption of the large or even "single-shift" system; hence the introduction of tank-heating; and hence, also, in the main, Mr. Hamilton's very simple and useful mode of culture as applied to some of the kinds. It must not be understood, therefore, by our readers, that we wish them to fall pell-mell on every pit, and disturb things that are quite at home. When and where, therefore, necessity—that imperious dame (who, as the Scotch say, "Gars the auld wives' trot")—dictates that a renewal of bottom warmth *must be had*, and that, too, of a durable character, let it be, as far as possible, a thorough job.

Old tan on the surface must be passed through the riddle or sieve, and reserved to mix with the new, which

is frequently damp and claggy. The old tan serves admirably to qualify and mellow its adhesiveness, and not only facilitates what future plunging is requisite, but, indeed, renders the whole more wholesome, and less liable to breed those unwholesome fungi, which are at once contaminators of the atmosphere, and a most egregious eye-sore on the plunging surface. And now, the pit being emptied of its contents, during which a sharp eye has been kept on the character of the samples excavated, the refilling may proceed, and during this process "treading down" may be resorted to. We do not mean tread the tan, but the under material, and this in proportion to its elasticity. If leaves have been used in the preceding year, it is good practice to work up as many as appear fresh with the new material. The treading is done to prevent sinking too much, and to ensure steady, and, consequently, durable heating. We have known pits thus filled about three feet in depth, to retain their heat for a couple of years. Such a bottom, with one foot of tan, half old, but clean sifted, and half new, well blended, will make the sweetest and liveliest bottom warmth imaginable; and will form a suitable plunging medium for Pines, forcing flowers, or fruits, or, indeed, for stove-plants in general, throughout the year.

Not every pit, however, can, or may, be thus broken entirely up at this or, indeed, any other season: most of the re-arrangements necessary before winter will consist of mere temporary surface renewals; and, indeed, where it is possible to carry Pines through the winter without disturbing them, it is by far preferable; for the amount of injury done to the foliage, under ordinary circumstances of removal, is, in our opinion, even more than the old practitioner takes into the account. Most pits may be renewed by thrusting abundance of tan between the stems of the Pines; and where the pots have only been half-plunged, a considerable space will present itself for filling up. It is good practice to *half-fill* this first, taking a strong stake, and stirring the old tan as deep as possible, in order to let the new tan sink among and blend with the old. The more intimately it is blended the better; and this done, another coating of tan, old and new mixed if possible, may be applied over the whole, even covering the entire rims of the pots if necessary. Indeed, we think it excellent practice with all successions that require one shift; as the tan induces a host of surface fibres, which add much power to the plant in the ensuing spring.

One thing may be observed as a preliminary step in such renewals, and that is, some attention to the moisture of the tan, &c., previous to these operations. It generally happens that the tan is dry, or what is termed "husky," either the whole surface, or in parts. When such is the case, it must be liberally watered before any stirring takes place, so that the deep-forking with the stake may carry the fresh moistened particles down.

All necessary watering at the root must have a careful attention at this period, using tepid liquid manure; but wherever any doubts exist as to the necessity of applying water, remember that it is more likely to be honoured in the breach than in the observance, especially with such Pines as the Montserrat or Black Jamaica. Where pits have been *entirely* broken up, it is necessary to water the trial-sticks carefully for two or three weeks; and in all such cases the pots should not be plunged above a third of their depth; rather heaping up the tan between the pots as high as it can be filled without touching the pots, to be levelled down when need requires. They will thus take a coating of tan of several inches in depth about Christmas, if necessary; soon after which time the solar light will increase, and the plants, in consequence, require more heat both in the soil and the atmosphere.

Much care will now be requisite with stocks of Pines in what are termed dung-pits; that is to say, pits in

which they depend on fermenting material alone for their heat. The linings must be thoroughly examined and "bottomed," in order to make them at once strong and durable, without which it is impossible to give abundance of air; the latter being absolutely necessary, in order to harden the leaves, and, indeed, render the whole plant firm. Herein consists the chief secret of having strong, robust stock in the spring; it is not altogether uncommon to see badly-aired plants so tender, that in January their pale green leaves may be twitched out of their sockets with the least touch. Fruiterers will require a somewhat different treatment; indeed, few will think of trusting them in mere dung-heated pits; and where piping or flues are employed, use what water we will, the plants are always more firm in the leaf, and, consequently, able to endure more heat, which they also require. Late fruiterers will now, at times, need a little good, warm, liquid manure; this, however, should be seldom, yet copiously, administered, remembering that such as Queen's, Providence's, and Enville's, will require it thrice as often as the Jamaica's or Montserrat's.

All crowns or suckers henceforth needed for future stock, may at once be dibbled in the tan at the front or shady portion of the pit; and here they may remain until February, causing no further trouble. Large crowns are frequently the subject of complaint, and justly so; we fear that this is too often owing to the pits being under-heated, and a want of ample provision for atmospheric moisture. If a house, or pit, is not sufficiently heated, the cultivator cannot gain the amount of air necessary; and if deficient in provision for atmospheric moisture in abundance, he is one-half his time afraid to give air for fear of losing humidity. Bad or weak "shows" are almost sure to have big crowns, and no wonder; the strength of the plant not finding vent in its legitimate channel, the fruit *must* expend itself in large crowns or suckers; which the plant, taxed with an enormous fruit, can scarcely afford to do. Nevertheless, there is no doubt that those conditions which "draw" the growing plant, will also "draw," or, in other words, enlarge the crown. A free ventilation is the best preventive.

R. ERRINGTON.

THE FLOWER-GARDEN.

COMPANION TO THE CALENDAR FOR NOVEMBER.—This is a busy month for the flower gardener. All the hardy bulbs that are to flower in the spring should be got in as soon in the month as possible. *Anemones* are the first on the list, and we are to suppose that two plantings of them have already been made—one about the middle of September, for the first crop, one in October, and the third just now on the point of following; then the *Turban* and other *Ranunculuses* are to be planted for the first time this autumn. After this both kinds may stand over until February, unless the winter should be very mild about the beginning of the new year, when an intermediate planting of them might safely be made. The ground for them, and also for bulbs in general, should be deeply dug, and some very rotten dung put in at the bottom, a foot or more below where the bulbs stand; an inch-and-a-half, or, at most, two inches deep, will be about the right depth for all the border anemones and ranunculuses. If the ground is at all stiff, or heavy, the old plan of placing a little sand under and all round them, and every kind of bulb, will give them a better chance to root and top, than being immediately surrounded with heavy, wet soil. A friend, in this neighbourhood, is in the habit of putting a slight covering of short, littery dung, from the stable, all over his autumn planted anemones and ranunculuses, whether they be in rows or in beds; he is one of the best bloomers of them that I know, and they increase with him so fast that he

annually sells quantities of them to the London trade. It is not at all unlikely that beds of border *Tulips*, *Hyacinths*, *Narcissuses*, *Gladioluses*, *Irises*, and all the rest of them, would be benefited by a like covering, although we know, full well, that it is not safe to let any kind of fresh dung come in contact with the bulbs themselves.

The first regular *Hyacinth bed* I had ever seen planted, I recollect very well, was covered full three inches deep with rich, rotten dung, for I wheeled the dung with my own hands, but then I was not gardener enough to be trusted with laying it on the bed; the worst of it was, that the blackbirds were constantly scratching the dung, seeking for worms and insect grubs, and something of that sort may have been the cause for giving up this good old practice, for good it certainly was. In February, or as soon as the leaves began to get up into the dung covering, it was taken away, and the crumbs left about an inch thick; but taking away the dung was no improvement, except in the look of the thing, for the hyacinth likes to be well buried, never less than four inches at least, so that if put in now two inches deep, and then covered three inches deep with well-spent dung, and that again with a slight covering of earth, to hide the dung after the frosts were over and the leaves appeared, in the spring, one might expect a very fine bloom, not only for that year, but through a long succession of years.

I am quite sure that, besides securing them from frost, *Gladioluses* would also pay for being thus covered, if we could but make up our minds to the kind of covering. As for these gladioluses, I do not believe that a bed could be too deep for them, provided it was not wet at the bottom. When Mr. Herbert's seedling *Gladiolus* came out, many years since, I began to cross them, and raised numbers of seedlings, and the best pots I found for proving them were 22 inches deep and 12 inches wide, all the way through; they were the kind of pots the late Mr. Knight once recommended for growing the pine-apple in. I used to sow and set the little bulbs in these pots as thick as they could stand.

There is another old practice with bulbs and other things which one never hears of now-a-days, but cottagers, gardeners, and all others who plant in mixtures, would find it very useful. It is, to plant bulbs, and such plants as do not appear above ground till late in the spring, and are, therefore, not to be seen at the time of dressing the borders, within rings of hoop-iron, or of pottery-ware, burnt hard, so as not to be easily broken by the spade while the digging was going on; old pots that got chips out of the rim, or were cracked beyond use, might very properly be used to guard things in the borders, if the bottoms were first hammered out; and it would not be a bad plan to confine such things as creep too much at the root near the surface in the same way, keeping the rims of the pots just deep enough to be out of sight. November is the proper time to think about all this, and without a Companion to the Calendar it would be quite impossible to throw out such small hints, although they are always useful to the learner, and not to be overlooked by any of us.

Dahlias should have the names or numbers tied to the old roots by copper wire as soon as they are taken up, and they may be left to dry slowly in a shed or out-house until the first wet day, when they may be cleaned at leisure. Any of the tubers that may have been broken, or bruised, should be cut out, and the remains of the old stems cut down to two or three inches of the collar; this is always the part most liable to rot or damp, and must be looked to from time to time, and if any symptoms of decay appear it is better to cut or scoop out the whole of the old stem than run the risk of losing a good root. There are several calls already for the dwarf dahlias, the dark and the scarlet *Zelindas*,

but very likely no dealer grows such old things. Mr. Jeffries, of Ipswich, has a large stock of the *Garland dahlia*, the next best of the bedding kinds, but it is not nearly so dwarf as we must have them in a few years if we mean to have regular beds of them. After all, the whole question is a matter of taste, and the universal adoption of great fancy sorts in almost every garden, renders it questionable if these dwarf, starry, and ragged sorts would be tolerated by those who make the first enquiries after them. It was only from the very highest classes that I learned this turn of fashion; for my own part, if I could get single dahlias, such as I could picture from imagination, I would never plant a double one in a flower-bed at all, and if I did grow any double ones, I would have them all in one place by themselves, away from the flower-beds.

Evergreens.—I do not now concur in the general belief that the autumn is the best time to plant all kinds of evergreens *indiscriminately*. Within the last two years I have planted evergreens every week in the year, more from necessity than choice it is true, but still, the result of the whole convinces me, that a dogmatic adherence to this or that given period of the year is just as bad and unphilosophical as the old prejudice in favour of planting all kinds of evergreens late in the spring. Yet I have been as deep in the mud as any other writer in recommending these two extremes in their turns; but we should never be too old to learn from experience, and a *Companion* like this should touch only on matters founded on actual practice. That vast assemblage of evergreens belonging to the natural order *Conifers*, from the Cedar of Lebanon down to the trailing juniper, should be planted off-hand now as soon as possible, as from the middle of July to the beginning of October, according to the weather after St. Swithun's day, is certainly the best time of the year to plant or transplant the whole of them. November is as good a time as can be, on the other hand, to remove evergreens of all kinds, provided that large balls of earth be removed with them. *Hollies*, *Laurustinus*, *Alaternus*, *Phillyreas*, and *Tree Box* will transplant as well in May and June as at any other time of the year, of that I am quite certain; I have removed hundreds of them in May and June without losing a twig. On the other hand, all these, and many more besides, will answer as well if planted now, but that is no reason for giving up the old plan of late spring planting such evergreens as do well at that time, although we need not do so from choice. The whole question amounts to this:—All evergreens succeed if planted in the autumn; a great number of them will do better from being planted in the autumn, and will not transplant safely except in the autumn; while a large portion of them may be planted every day in the year with almost equal success. That appears to me to be the right state of the question, and here I leave it for the present, and pass on to the roses.

November and May are the two best months to *remove Roses*. All the young and tender ones in pots we turn out in May, but for all those on their own roots, November is the best month to remove them; this is also the best time to *train down* the strong hybrid perpetuals, on the principle of little or no pruning, as explained in my last letter, and it is also the best time to *prune* all roses that are weak, or nothing more than of common strength. Indeed, all roses which require close pruning should be cut in November, unless there is some particular object in view to justify their being put off till the spring, such as, for instance, a desire to have them in bloom later than usual, or to check over-luxuriance, as late spring pruning is known to do.

I subjoin lists of the best roses for different purposes, every one of which is well worth having, and we can refer back to them for a year or two in our answers to

correspondents who may not be so lucky as to possess our former volumes.

There is an old and very pretty rose called *Crested Moss*, though it is not a moss rose at all, and I wonder that some of our best growers still continue to class it among their moss roses. Seven years since I offered to one of our greatest rose-growers five guineas for a plant of a *Moss Rose* and *crested*, that is, having the flower-cup fringed as completely as the legs of a bantam cock.

Damask Perpetual.—The best in this division is the old rose which used to be called *Lee's Perpetual*—the right name of it is *Rose du Roi*, or *Crimson Perpetual*—and *Mogador*, or *Crimson Superb*; this is an improvement on Lee's Perpetual. They are two of the best roses in the world.

Hybrid Perpetual.—In choosing out of this very extensive class, the strongest growers should be preferred, and those which open well in the autumn, and they should be on their own roots, or, if they must be budded, *Madame Laffay* is the best stock for them. They all grow from cuttings as freely as gooseberries. *Baronne Prevost* is the largest flower, *Mrs. Elliot* the strongest grower; this and *William Jesse* may always be known by the metallic-like shine of the outer petals. The shade of *Comte de Montalivet* is different from all other roses; it is a kind of light bronze, and the guard-petals fold in towards the centre of the flower, another peculiarity which no other rose exhibits; *Geant des Batailles* is the most brilliant rose known. *Madame Laffay* is the hardiest and the latest flowering of this class:—*Augustine Mouchelet*, *Baronne Prevost*, *Chateaubriand*, *Clementine Seringe*, *Comte de Montalivet*, *Cornet*, *Duchess of Sutherland*, *Geant des Batailles*, *Jacques Lapiette*, *La Reine*, *Standard of Marengo*, *Madame Laffay*, *William Jesse*, *Mrs. Elliot*. I have grown every one of the above, and a score more of the same cast, except the *Standard of Marengo*.

Bourbon Roses.—The best of these blossom in the autumn, and some of them are very beautiful for beds, with few exceptions. They also should be grown on their own roots, or, at any rate, the strong growing ones. One great advantage in having Bourbon Roses on their own roots in flower-beds is, that if a very severe winter should damage them, they would soon throw up fine fresh shoots from the collar, or from the strongest of the roots, like the China Roses, from which the Bourbons first originated. *Comte d'Eu*, *Paul Joseph*, *Proserpine*, *Souchet*, *Dupetit Thouars*, and *George Cuvier*, would make a splendid bed of dwarf roses, with mixed rich dark colours; and in cold soil would do better budded on stocks of the *Manetti* Rose, not more than four inches out of the ground; but they and *Emilie Courtier*, and several others of that style of growth, should never be budded for standards, as they seldom live more than two or three years on tall standards. Another section of these Bourbons take after *Madame Desprez*, making long vigorous shoots, which bloom at the ends in large clusters; these, also, are not well adapted for standards, they are best suited for low walls, pales, or for stakes and poles.

D. BEATON.

To be continued.

GREENHOUSE AND WINDOW GARDENING.

PRESERVING PLANTS OVER THE WINTER: CALCEOLARIAS.—Next to scarlet geraniums, the shrubby and half-shrubby varieties of these are the greatest favourites with our friends of the window, the balcony, and the small flower-plot, and deservedly so, for few flowers delight us so long with their continuous trusses of bloom. In speaking of preserving them through the winter, I wish my observations to apply not to those

who have every advantage, and who must have plants by the thousand, but to those whose means are more limited, and who are content if they can muster plants by the hundred, or the score.

1st. These cannot be kept in the baskets and vases, in which they are now, in a *dry state*, similar to established geraniums of the scarlet group. The question, Why? was lately put. The answer was obvious:—First, these plants are not succulent, like the geranium, and, therefore, have not the same internal stored-up supply of juices to fall back upon; and, secondly, at no season will they bear the same amount of *dryness*, either in the roots or in the atmosphere. This will at once be apparent if it be recollected what was said of their native localities on the mountain sides of Peru, and where the melting of the snow far above them in summer would yet tend to keep the roots moderately moist, and the atmosphere approaching saturation point. Hence, in practice we find, that in seasons rather dry, it may be necessary to check luxuriance in the scarlet geranium by cutting roots, pulling off large leaves, and withholding water; while in the case of the calceolaria, to maintain them luxuriant and full of bloom, there must be a frequent and no-sparing application of the water-pail. Clear, dry seasons, with few heavy showers and boisterous winds, but with artificial watering at command, are the circumstances in which these plants show off to the best advantage. Moisture must not be withheld even when in a comparatively dormant state in winter, and light must be given in proportion to the moisture, or there will be danger of damping and rotting. Therefore,

2ndly. These plants are easier preserved in the beds out-of-doors in which they now are than the scarlet Geranium. A waterproofed covering is not so essential, though even for them it would be useful, especially in continued cold rains, and sleet, and snows. The covering stuck among them ~~should~~ be of an open nature, such as fern; and in fine weather it should be pulled a little from the plants, and put close again in frost. Damp will seldom do them any harm, provided there is air in motion. By these means I have frequently saved fine plants; but I never managed a bed without having some breaks in it, or which, if left to itself, did not grow unequally during the following season. The last winter might be deemed an exception, as there was hardly enough of frost anywhere hereabouts to kill these plants, though without *any* protection whatever. Gorgeous as such plants looked in the first part of the season, yet, taking the whole summer and autumn through, the greatest attention could hardly make them companionable by the sides of young plants, or those that had been lifted and planted again. Even in the case of those saved by protection in beds and baskets, it would always be advisable to lift and plant again in April or the beginning of May, as thus a more regular outline can be given to the plants, and a fresh place or fresh soil allotted to them. Hence

3rdly. It would be advisable to lift the plant at once, whenever the weather is threatening, generally some time in November, though they will frequently remain uninjured to the end of December. The weather, not the time, must be our criterion. The longer they remain unlifted, the less will be our trouble with them, and it is seldom that the first night's frost, though a little severe, does them much harm—as the flowers and the top part of the plant protect what is lower—and when we lift, we run over all the flowers, and the top part of the plant, at any rate, leaving nice little bushes, just small or large in proportion to the room we can give them. Now, this raising of the plants pre-supposes that we have some place in which to put them. It is not of so much consequence what kind of a receptacle it be, whether an earth or a turf-pit, a brick-pit, or

a wooden frame, or even a large-windowed room, where a damp floor would be no object, the worst place of all being the attempting it in the window of a sitting-room, where a cosy fire is maintained, especially if the plants have *not* been growing in pots. If in pots previously, they will stand very well, with a frequent dusting over of the foliage with water, and keeping the surface of the soil covered with damp moss. The best of all is a bed such as I described last week for the Geranium, with a little dung underneath, but the treatment must be different. Wherever put, except there is part of a stage of a cool greenhouse to appropriate, or where the window is all the convenience, the plants, after pruning, should be lifted with a spade or fork, and taken with the most of the earth that will adhere to the roots, and planted in the receptacle at once, in light sandy soil. They may be crammed rather thickly, but you must give them more room before finally transferring them to the open garden again. The soil must be *moist*, or rendered so after planting, with some a little drier on the surface. The use of such hibernatory, is, that half-hardy plants will, in general, do much better, than if not protected where they grew, while having everything we wish to keep in a small compass, is a saving of time and labour, and enables us to do what we like with beds and boxes in winter. For covering such beds, however made, glass is best, next wood, next straw covers, rendered waterproof, and then asphalt, with material in readiness to throw over in very severe weather. In my own experience, I have always found that such plants, *planted*, did much better than when they were *potted*, chiefly owing, I believe, to the uniform degree of moisture they thus enjoy, and so productive are they in fibrous root, that they suffer little afterwards from transplanting. The only superiority of the bed with the hot dung beneath it, is that roots are at once encouraged, and thus there is less risk of a failure; but with every make-shift of a covering, provided it could keep out heavy rains, I have succeeded, where the plants were closely packed with earth, without any bottom-heat whatever. With or without this dung beneath, the plants being planted, the future management must be different from the Geraniums; in fact, a division should be placed between them.

1st. The soil must be *moister*; and on a sunny day, the plants should be syringed to keep the tops moist.

2ndly. Air should be given when the external air is above freezing; even in very muggy weather the lights and coverings, though not removed, should be *tilted* up back and front, so as to allow the air freely to percolate; the damp air doing no damage whatever so long as *not confined*. Even though the covering be opaque, such as wood, or asphalt, the *tilting* of the covering will give enough of light. Night and day, fair weather and foul, they should never be entirely shut up, except when cold and frosty, and then when shut up close, and the tops dry, the lowness of the temperature prevents all danger. Let the roots grow as they will, the object should be to keep the tops fresh, but not growing, until the middle of March. But is this the best mode of saving plants for vases, baskets, and flower-beds? Yes, if you have done nothing to render yourself independent of old plants; for, though aware that with a hotbed you may obtain plants from cuttings in a fortnight in March or April, you must have some source whence you can obtain these cuttings, and the best friends are not too liberal then. If, however, you took care to insert cuttings as advised in September, then

3rdly. Looking after them is the most profitable and economical course you can adopt. The most of them will now be nicely rooted, and nice stiff little plants, if struck in a north border. They will require much less room than large plants, and if anything like the same space should be given them, before final planting-time they will equal, and in most cases excel, the old ones.

They will not stand quite such hard treatment as the old ones, and require at all times the protection of glass, chiefly as a means of obtaining light, when other coverings could not well be removed. I have said struck in September, because I have found the middle of that month the best time for inserting short stubby cuttings of all these shrubby Calceolarias. There is less difficulty with them in the middle of October, than in trying them in the middle of July and August. I have even inserted the cuttings in the beginning of November, and they have done well. A cool, moist atmosphere is what suits them; and this, even after being struck, they must have during the winter. If kept in windows, they will be better for double pots, the space between being stuffed with moss, and that kept moist, especially on the surface. A moist atmosphere will never do them harm, if kept in motion. I think that much trouble with young plants of these and other things, such as verbenas, will be saved, when, instead of keeping them, as now, in pots, pits, and frames, we can command their hardihood by pricking them out in prepared soil, just as we would beds of young celery plants in spring. Provided we judiciously guard against damping, plants are less easily injured by variations when planted, than when kept in pots. Last season, at this period, verbenas, &c., pricked out thickly in an earth-pit, with old lights laid over them, thoroughly beat out of the field those potted and honoured with house treatment,—like the Scotch Kale in the kitchen garden, with them it was literally "cut and come again," an advantage that was experienced by many who wanted cuttings, as well as myself. By following such a plan, and transplanting a time or two, the most of those plants that form fibrous roots, might be taken to their summer residence without previously having come into contact with a pot at all, and flourish, as I find, none the worse in consequence.

There were other matters I intended alluding to, but my space is filled. The same remarks apply to a great proportion of our half-hardy plants, and I shall be gratified if those with limited means can find something that will suit them.

R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS THAT THRIVE WELL IN POTS (Continued from page 50)

TRICHOPILLIA MARGINATA OR *COCCINEA* (Bordered-lipped or scarlet T.); New Grenada.—Sepals and petals greenish-white, and in the centre of the flowers there is a rich large spot of a dark scarlet colour. The pseudo-bulbs stand upright; they are about five inches long, of equal breadth the whole length, and are flat, nearly approaching to strap shape: the foliage is rather small, and is placed upon the ends of the pseudo-bulbs. This is a new species, and very desirable. 42s.

T. SUAVIS (Sweet T.); New Grenada.—The flowers are of a pure white ground, thickly spotted in the centre with deep rose; pseudo-bulbs short and roundish; leaves medium size, one or two upon each bulb, and one or two surrounding the base; very fragrant. This is, also, a new species, with the largest flowers of the whole genus. A handsome desirable species. 42s.

T. TORTILIS (Twisted T.); Mexico.—Sepals and petals brownish yellow, slightly barred with brown, curiously twisted like a corkscrew; the lip is white spotted with red. A handsome free-flowering plant, much esteemed. 15s.

Culture.—These plants are found growing in the cooler parts of South America: hence they will thrive well with us in the cooler Mexican house. **Soil.**—The usual compost of rough peat, chopped sphagnum, broken crocks (potsherds), and charcoal, will grow them in a

satisfactory manner. They will be benefited, however, if some half-rotted tree-leaves be mixed amongst it, and the best kinds for that purpose are those of the oak or the beech. **Potting.**—The season for this operation is early in the spring; at which time, if the rest has been duly attended to, they will be beginning to grow. Provide against the time a sufficient quantity of the compost, and let it be put in a warm room to be well aired. Have also ready, plenty of broken pots of three sizes; the largest to be placed over the hole or holes at the bottom of the pots, the second size upon them, and the third upon the second; these last should not be larger than hazel nuts. The whole should occupy at least half of the pot. Upon this drainage place some of the roughest of the compost; then bring the plants to the potting-bench, which should be in a warm shed, turn them carefully out of the pots, and pick away from the roots as much as possible without injuring them of the old soil; clean the leaves from dust and dirt with a sponge dipped in tepid water, and at the same time look out diligently for all kinds of insects, and wash them off too; then let the leaves become moderately dry, and after that repot the plants. *T. tortilis* should be well elevated above the rim of the pot, because the flowers spring from the base of the bulb, and have very weak stems. The weight of each flower is so much that the weak stems cannot support it, but if the plant is raised up an inch or two above the pot, the flowers are then seen to the best advantage. Mr. Schröder, of Stratford, near London, exhibited a plant of this kind so raised up, and very handsome it appeared. It measured more than a foot across, and had nearly forty blooms upon it. As soon as the plants are potted give a brisk watering from a syringe, forcing the water out with some force. This makes the compost firm and close, and it will not then be so easily washed off by after-waterings. **Water,** give freely during the time the plants are growing and forming new pseudo-bulbs, but as soon as these have attained their full size, reduce the watering very considerably, and when they are at rest in winter give no more than is necessary to prevent them from shrinking. **Heat,** in summer, by day, with sun 70° to 75°, without sun 5°, or thereabouts, less; by night, 55° to 60°. When at rest during autumn and winter, 60° by day and 52° by night will be amply sufficient. A moist atmosphere should be kept up when the plants are growing, and a drier one when they are at rest. As most orchids grow at the same time as *Trichopilia*, the same treatment applies to all.

T. APPELEY.

FLORISTS' FLOWERS CULTURE.

THE RANUNCULUS (Continued from page 64).—In our last essay on the culture of these elegant flowers, we gave full directions for planting them, and described the protection necessary for them during the early months of spring. The next head into which we shall divide the subject is

Watering.—To succeed satisfactorily in growing and blooming the *Ranunculus*, the operation of watering must be diligently attended to, especially in dry weather. In order to do this effectually, it will be greatly advantageous to have the beds perfectly level, and each bed should have an edging either of narrow boards, or long narrow slates, which should project an inch, at least, above the level of the bed. This edging will check the water running off the bed into the walks. Previously to the first watering, immediately after the plants have been broken through the soil, and when the surface is moderately dry, tread the soil between the rows down pretty firmly with the foot. Tread one side of the bed first, and then the other; this will prevent the necessity of treading upon the bed with both feet at once, which

would press the soil too much and unequally. After the bed is regularly and equally pressed down, then press the soil close to the neck of each plant, and between them, with the hand. When this is completed, proceed to water the bed with a rather coarse-rosed watering pot; give it freely and liberally, and to do this right well, go over the whole bed with a heavy shower, and as soon as that has sunk in and disappeared, commence again, and repeat the shower. In most cases, this will be amply sufficient for a week's consumption. If the weather still continues dry, at the end of the week repeat the operation, and continue to do so until heavy natural showers take place. It is probable that the soil will, with such heavy waterings, in time become baked on the surface, and will crack into fissures; whenever that is observed, let the surface be loosened, and stirred up with a small three-pronged fork, breaking into the smallest possible bits the pieces of hard soil. Care must be taken that the roots are not disturbed, nor the foliage injured, by this operation. A gentle shower from the watering-pot should be given, immediately after the forking is done. This will cleanse off any soil that may have fallen upon the foliage, and also settle the soil into an even, compact surface again. Continue this abundant supply of water whenever the weather is dry, up to the point of the bloom beginning to open, and then discontinue it, as we may then fairly suppose that the bloom is secure, and more especially if the plants are shaded during the time the sun has its greatest power.

Shading.—Having, as we trust, by such treatment, viz., choosing a right situation, using proper soil, properly planting and diligently watering, brought the plants into luxuriant health, and into a fair promise of bloom, by the appearance of numerous flower-buds in fine condition; the next point to attend to, is to have ready a protecting shade, to shelter the blooms from the sun's rays. This shade should be applied at the time the flowers begin to expand, and not before. If expense is no object, a shelter from the sun, formed like the one we lately described for the Tulip, would be the best, inasmuch as it would allow the blooms to be constantly seen, and would protect them from heavy rains and dews, which would tarnish very soon the bright colours, almost as much and as soon as the scorching rays of a June sun. It is, however, rather expensive at first to put up such a shelter, and, therefore, for such as may not choose, or have not the means, to erect such, an otherwise desirable summer shelter, of hoops and long rods, covered with sheets of canvass, may be adopted, to be taken off when the sun does not shine brightly, and in fair weather; with which shade the bloom will be prolonged much longer. The hoops may be made of hazel rods, bent over a long stout rail, nailed to upright posts at each end of the bed, with a sufficient number placed in the bed itself; or hoops of the right length may be procured from a cooper's yard, or, what is the best of all, they may be of iron rod, cut the right length. Whichever they are, they will require short stalks placed at the side of the bed, at such a distance from each other as will support two long rods, either of wood or iron, on each side. These rods must be fastened firmly to each hoop, and then they will support the canvass cover perfectly, so that it will not touch the flowers.

T. APPLEBY.

To be continued.

THE KITCHEN-GARDEN.

CAULIFLOWER PLANTS—THEIR PROTECTION IN WINTER.
—As we last week made a few remarks on the various kinds, and general treatment of Lettuce intended for winter use, we now enter on that of a vegetable not less

useful, though in a different way, and as its welfare during the winter months is of great importance, it being, in fact, one of the most useful vegetables we have during the early summer months, we make no apology for making a few remarks on the treatment necessary to ensure its well-being. In the first place, we will commence with that very important subject, *shelter*, it being generally known that the delicate habits of the Cauliflower require some such protection during the inclement months of winter, for, although it may, on some occasions, have stood in an exposed seed-bed, uninjured, yet such cases are exceptions rather than the rule, and hard frosts and frequent changes, so common in those winters called hard ones, so much reduce the plants in leaves as well as in numbers, that when planting time arrives, there is nothing left to plant out. Now, though we invariably leave a considerable portion of ours to their fate in such a place, and have often derived much good from plants so injured to the cold, yet we always preserve a quantity under glass, sufficient (and something more) for the first crop. Our mode is this:—we procure seed of the best kind of Cauliflower that can be had, which are close even heads, free from branching, or other coarseness. The first sowing we make some time between the 15th and 25th of August, and the second, on which we principally depend, the first week of September. Occasionally we sow a little seed as late as the middle of that month, but then we find it necessary to cover with glass immediately. The former sowing, being made in some open place, very often on a south border, if the weather be very dry, which it often is at that time, the beds will require water, and, what is equally necessary, shading. We have sometimes used a very simple process in so doing—a few pea-stakes laid over the bed, and over that, a little of the haulm, very thinly spread, never sufficient to prevent the sun's rays entirely from shining on the beds, but sufficient to check its doing so too much; under such a covering as this, the bed does not get so hardened at top from watering, as if there was nothing over it, while, at the same time, it derives benefit from the all-reviving rays of the sun; and if all other things be favourable, the seeds quickly vegetate:—the shading material must then be gradually removed, and a close watch kept against the slug and other enemies:—we now presume the plants to be progressing on:—if the weather be warm and showery, their growth will be the quicker, but we do not like them any the better for that, what we want is a sturdy habit, and for that purpose do not sow too thickly. If all goes on well, the first sown ones will be ready to plant out about the 20th of October. Our plan, as recorded last week, is to plant those intended for earliest use on some well-sheltered border, facing the south, and under hand-glasses at once, where they are to remain. We usually plant nine plants under such glasses, and they are placed so far apart as to allow standing room for their tops when taken off, as well as to walk between, and examine them;—we usually plant a few plants under each light of the earliest sown, and the remainder of the second or principal supply; the former are sometimes liable to button, and consequently are useless, so that it would not be safe to trust entirely to them, but when they do not do so, their greater forwardness is advantageous in the spring. After planting, we usually put the tops of the glasses on close, for a day or two, until the plants have taken hold of the ground, when they may be removed, and the plants be inured as much as possible to the cold, up to a late period of the season. Besides those planted as above, we plant a quantity under a box frame or some temporary imitation of one, to which any spare lights can be applied in bad weather; these should be filled with earth as near to the top as possible, and as the plants are expected all to be drawn and planted out in March and April, they may be planted tolerably thick,

say three inches apart, each way. Besides these methods, we have often planted some under the shelter of a wall facing the west. This we think is the best aspect for them, and we have wintered plants pretty well when planted in a row about a foot from its bottom. The above plantations will, we presume, have so thinned the seed-bed that plenty of spaces may be found on it in which to stick boughs of evergreens, firs, fern, or similar protection, when hard weather does arrive. Be sure to look to these boughs on windy days, or you will suffer more by their blowing about, than you will benefit by the shelter they may have given. It seldom happens that any further covering is necessary to those under glass than the glass-lights or hand-light tops, but be careful in not removing them too suddenly, when mild weather does set in, as a long confinement unfits them for enduring strong currents of air; and endeavour to have them dry at the time they are first exposed,—if they have been previously injured to the hardening influence of dry, cold winds, so much the better, and if even slightly frozen before they are covered up, they are none the worse, for all progress in growth (which can never be healthy under such circumstances) is thereby stopped, and they are less liable to suffer from other causes, as damping-off, mould, &c., &c. We need hardly observe, that, in extreme cases, some additional covering is necessary; and in the northern counties, when the frost is very severe, this should always be done; besides that in those later districts, they may be sown sooner than in the south of England. We have sown them from the first to the twentieth of August in one of the northern counties, and found them none too early, the great object being to get a hardy, stocky growth before winter sets in. We may remark, that where a good supply of *late Brocoli* exists, they ought to prolong the season up to the very time of the first Cauliflower coming in, and, by a little management in that way, we have never been without the one or the other during the whole season, as well as some years before now. This is all that is wanted. A few heads of the *Wilcove*, or some other late Brocoli, is equally valuable as Cauliflower when it is good, and a considerable spring growth has taken place; but when it is merely the flowering or fructification of a diseased, stunted plant, it is certainly inferior to that delicate vegetable. However, the mode of trying to make the one continue until the other relieves it, is the point usually aimed at by gardeners.

GARLIC AND SHALLOTS.—These bulbs, which we pre-

sume to be harvested and put by in August, may be now looked over, and any that show symptoms of growing may be at once planted out on some open sunny border, not too deep; but we prefer not planting out until December, when the principal crop may be put in. Garlic is more hardy than Shallot, and may, in many cases, be left in the ground. It ought, however, never to remain longer than two years in one place, and only one if it be planted thick. Remove all diseased bulbs from amongst the stores of Shallots as well as the *Underground* or *Potato Onions*, both of which are liable to decay in autumn or winter.

CUCUMBERS.—Great care will now be necessary in order to carry this delicate plant through the cheerless period that is just approaching; the dark days being alike unfavourable to its health, and favourable to the insidious enemies it has to contend against—mildew and the thrip; and the tender state of the plant at this untoward season rendering any severe measures used to extirpate those pests fatal to the plants, we are the more inclined to urge the propriety of watchfulness. Let no drip fall on the plants; for that purpose the roof ought to be rather a steep pitch, for this as well as for all other winter-forcing apparatus. If, however, mildew does show itself, scatter some sulphur over the flues or hot-water pipes, and a little, but very little, on the leaf affected; as we have said above, the plant cannot endure severe treatment at this season. The thrip may be kept down by occasional slight fumigations; water will be but little required, and do not admit any stove or other plants into the Cucumber department, as such often bring insects and other evils in their train.

SUNDRIES.—The latest *Celery* will now want a final earthing-up; the mild and showery weather in October has favoured its growth. Look over and cut *Walcheren* and *Cape Brocoli* as they are ready; and any *Sea-kale* that may have been begun to force must be often examined to see that it does not get too much heat. *Asparagus* may also be put into some forcing position, if not done before. See to and make good defects in the plantations of *Lettuce*, *Endive*, *Cabbage*-plants, &c. If the weather be dry, prepare a piece of ground on which to sow the first crop of *Peas*, which, however, need not be done until the middle of the month. Protect *French Beans* so long as they are worth it; and remove *tree-leaves*, &c., from beds of Cabbage, Lettuce, and other plants, as they only blanch or tender them.

J. R.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

THE more we look around, and observe what is passing before our eyes, and the more we are led to consider what is, and what is not, favourable to the well-being of the population of our towns and villages—the sooner must we come to the conclusion that beer-houses and common public-houses are the misery and ruin of the people.

In a periodical like *THE COTTAGE GARDENER*, the circulation of which is so extensive; and its readers among all classes—the influencing, and the influenced; which is found in every town, and village, and hamlet; in the hand alike of pastor and flock, landlord and tenant, master and man; and the end and aim of which is exclusively the moral and social good of the humbler ranks of the British people; I feel that I shall not be exceeding my mission, if I press strongly, anxiously, and earnestly, this subject upon the attention of my readers. Living in a rural district, we daily see and feel the wretchedness and sin that is induced by drink, and it excites a warm desire to arouse the inhabitants of other districts to a full sense of the evils caused by this unholy merchandise of the bodies and souls of men.

Beer-houses are, alas! sanctioned by law; in a Christian land where that Word of God is professedly received, which declares that those who are guilty of "drunkenness" "shall not inherit the kingdom of God." It is enacted by law, that anyone who can procure the signature of three respectable householders to his application for a licence, to promote and encourage the sale of beer, is entitled to obtain it. Here is indeed a traffic and merchandise worthy of great Babylon herself; "slaves and souls of men" are bought and sold in every parish in our land; and fearful are the effects of such pitfalls of Satan upon the mass of the people. In one parish I know there are upwards of twenty places where beer is sold, in the village alone; and in the roads and lanes they meet us at every turn. Can we wonder at demoralization and destitution, when such traps are laid for souls, so that they can neither go out nor come into their houses without passing close to a strong temptation? How incumbent then is it upon "respectable householders" to refuse their signature to these applications, on the simple and solid ground of their being destructive to

the poor, and dangerous to the well-being of the parish. Religious house-holders will refuse to sign anything that is repugnant to the Word of God.

In our own parish two of the beer-houses are kept by tradesmen—men whose station in life ought to preserve them from such a calling, for holy motives must unhappily be put out of the question. Both houses are lawless in their habits, and are known to be so; but matters are so managed as to avoid general observation, and the owners being in a higher walk of life, persons who could inform will not come forward to condemn their friends and connections; and nothing, unfortunately, is so difficult as to prove an offence, even when a true charge is made.

There have been no less than three warnings to the managers of these pitfalls of Satan, within the last four years. One beer-house, as I have already stated, was burned to the ground. I shall not easily forget seeing the wife of the man who kept it, standing out in the street one Christmas-day, in a green gown and pink ribbons, handing beer to two men in a gig, while the church bells were chiming, and the people were passing by to the house of God. This happened a year or two before the house, and the beer, and the gowns and caps, disappeared like smoke before the wind.

The owners of the most respectable public-house in the neighbourhood, have suffered loss, and have been obliged to give it up, under very discreditable circumstances. They were people, apparently, of steady, respectable habits, regular attendants at church, and never known to open their house on the Sabbath, although passing strangers have been seen taking a draught of beer at the door before the hour of morning service. These persons have made way for a tradesman, who ought to have done better, but whose tap-room is now very differently conducted, and who does not regard the Sabbath, to keep it holy.

The owner of another, and a much larger public-house, received a powerful admonition some months ago. He was passing along the road leading into the village, when a large pollard, which had stood on a bank from time immemorial, suddenly fell, and struck him to the earth. He was found lying insensible beneath the prostrate tree, but by the mercy of God, he was raised up from the bed of suffering, and enabled again to go forth among the children of men.

There must be houses of public refreshment in every village, where passengers may obtain food and lodging—they are useful and necessary things. The mischief lies in their abuse, and in the number permitted. A tap-room, where poor men are allowed and encouraged to go night after night, and drink away their reason and their children's bread, is an abomination wherever it may be found, whether in the smart-looking village inn, or the low beer-house. Wherever souls are perilled, there is sin; and when week-day intoxication is allowed, although Sabbath intoxication is not, it is after all, only sin committed in the most decent way.

It is a duty we owe to our God, as well as our neighbour, to repress sin, whenever we can do so; and it would be fulfilling an important share of this duty, to prevent the establishment of beer-houses; nothing effectual can be done for the poor, whilst they taint the air.

If all the "respectable householders" in a parish would refuse to sign testimonials for this purpose, the mischief would be greatly diminished for the future, although so much that is done must remain; and I am sure that none would ever see the hour when regret for so doing would disturb their minds; on the contrary, many who have but little to bestow on their poorer neighbours might then say, "I have done what I could." Let me urge this duty affectionately on all my readers, reminding them that whatever is done "as unto God" will never lose its reward.

And now for a word to ourselves. The warnings which I have just described, are as much meant for us, as for those who experienced them. "Or those eighteen upon whom he tower of Siloam fell and slew them, think ye that they were sinners above all men that dwelt at Jerusalem? I tell you, nay; but except ye repent, ye shall all likewise perish." These were the words of God Himself; let us all lay them to our hearts; and while we strive with our whole souls to owe God, let us not forget to love our brother also.

POULTRY-KEEPING.

HAVING seen several excellent hints in your valuable work relating to the feeding and general management of the domestic fowl, has led me to give also a short sketch of my fowl-house, and the management I use towards my poultry (after having ten years' experience with that race). Now, my house is eighteen feet by twelve feet, with a partition in the middle of lattice-work—one part for the roosting-place, and the other for the nests, which form one row all round, three feet from the floor. My nest boxes are fifteen inches square, with the hole in front eight inches by ten inches; but being pestered with fleas, and finding they generally accumulate at the bottom of the boxes, I had the bottom made with stout laths, nailed one inch apart, cut like an equilateral triangle, and nailed on with an angle uppermost, so there are no warm corners for such vermin. Half way round my house I have a yard eighteen feet wide, fenced in with a lattice fence. My house has a spare roof thatched with chips, and at each end there is a ventilator, made similar to the Venetian blinds, only on a much larger scale, so I can shut up close in very rough, cold weather. In the yard there is a small tank three feet wide and nine inches deep; over the tank there is a cover made with laths, to prevent the young chickens getting in, and the old hens from running through.

Having given a description of my house, I will proceed with a few remarks on the feeding of the birds. I have thirty hens and four roosters, principally of the Dorking or dunghill breed. From these I have received between 400 and 500 eggs, nearly every month, from February last, until the present month (September), which has not exceeded 150, owing to the number of hens which are moulting, besides rearing about 140 chicks. I feed my hens nearly always with good barley, excepting now and then I get a sack of oats for them. I shut them up as soon as they go to roost, and let them out about eight o'clock in the morning, when I give them as much corn as I think they will eat. If not very cold and wet, I let them out into the field, where they have a good stable-dung heap, the green stuff from off the meadow, and a gravel-pit, to employ themselves in, which are three excellent things for poultry. Then at noon I call them in, feed them the second time, and after which they go for their walk again, for an hour or two, and then go to roost contented. My hens when I set them, I manage to set three at the same time, so when they come off, I generally get too good broods from the three, instead of keeping the three hens from laying. When they are setting, I take them off only once each day to feed them, and then fasten them up again, after being off from an half to three-quarters of an-hour, according to the weather. I use bruised straw for the nests, which, when the hens are setting, must be middling thick, to keep the cold from the under side of the eggs. As the chicks hatch, I give them all a pepper-corn or two, to strengthen them, and select one of the hens, which I believe to be a good mother, to nurse them, as the other two hatched them. When they are hatched, I keep them under the two hens for a short time, till they have gained their strength, when I take them in a warm corner out of doors, and coop the hen, and keep her there until the chickens have got strong birds; then I let them have their liberty.

When first I kept fowls I used to feed my chickens upon grits, but finding they did not thrive to my satisfaction, I changed their food to cracked barley, which I soon found proved to my satisfaction, for it is not only cheaper, but the little things (instead of moping about after they were fed) ran and scratched about for worms and anything they could get; with this, my present plan, I seldom lose my chickens by death.

I will also give a few rules which I use:—

1. Always keep your fowls clean.
2. Always feed at one time.
3. Always let them out at one time.
4. Keep your fowls dry, but not so close and warm at night.
5. If they cannot get plenty of clean water supply them with it.
6. Always let your chickens have plenty of clean water and corn.
7. Keep your chickens in a warm, open, dry place.

8. If any disease appears among your stock, rather than doctor, kill the invalids.

With this plan of mine I always have a good supply of eggs. My fowls are all healthy, and when I want any pullets or young roosters for table use, they are always in good condition—"What's worth keeping, is worth keeping well."

CHURNS.

THE best churn for a small dairy, so far as simplicity of construction, produce, in one sense, and quality of butter, that experience warrants me to express an opinion of, is that made by Wilkinson, late Baker, 309, Oxford-street, London. Printed instructions for seasoning, and its after-management, are sent out with it.

In those days when four Alderney cows were included as part of my employer's domestic arrangements (and I would that it could be so now), two of Wilkinson's "patent box churns"—one for churning four pounds, the other twelve pounds—occupied positions in the dairy. They are made of sycamore; the skeleton paddles or dashers (oak) are secured in their places by an iron screw pinion, to which a winch is attached; this pinion revolves in bone sockets let into the sides of the churn. For the purpose of inspection, the lid, through which there are holes admitting a constant supply of fresh air, can be taken off and returned instantly. The handle on being reversed is extricated from the dashers, when the whole smooth interior of the churn remains free for scouring or cleansing. If this part of the affair is properly attended to (and the cows properly fed) purer butter cannot be conceived than that which is produced from these churns.

Frequently as little as a pound of butter has been made in the small one. If in very cold weather, the churn (for which it is so well adapted, and wherein even the most delicate female could exercise a skill in churning) were placed on a table distanced from the fire, the process is comfortably accelerated.

I send you an inventory of utensils (with their costs as applied to them) belonging to the small dairy, mentioning that they once numbered a cheese press, though this, some years ago, was disposed of, on finding, for three or four cows (Alderneys in particular) the process of cheese-making did not answer so well as that of sending the butter to market, and keeping pigs to consume the refuse. Most houses possess a boiler—whether it is of copper or iron, for the purpose in question is of little moment; the one that I allude to was cast-iron, and measured thirty gallons. Of whatever composed, it should be kept scrupulously clean, and free from all contaminating matters, for the purpose of scalding the utensils each time after using. The milk-pans and cream-steams were brown earthenware, their interiors of a yellowish-white colour, and glazed; the smaller-sized came into work in winter.

12 lb. large churn, £2 12s. 6d.; 4 lb. small churn, £1 15s.; scales and weights, 8s.; butter mit or tub, 7s.; butter board, 2s.; butter slicers, 1 pair, 2s.; large print, 1s. 6d.; small print, cut to any fancy, 1s. 6d.; large wooden cream spoon, 1s.; straining sieve and cloths, 1s. 6d.; cream skimmer, 1s.; 3 milking tins, 9s.; wood stripping bowl, 1s. 2d.; 8 large milk-pans, 8s.; 8 small milk-pans, 4s. 10d.; butter market-basket, 2s. 6d.; scrubbing brush, 1s. Total, £6 19s. 6d.—UPWARDS AND ONWARDS.

NOTES.

YARROW (*Achillea millefolium*).—While lately staying in the West Riding of Yorkshire for a few days, I was somewhat surprised to find a man actively engaged in gathering the flowers and stalks of this very common plant. On inquiring his object in so doing, he said that it was an excellent remedy for colds. I found afterwards that hucksters were regularly in the habit of collecting it for the Leeds market. The mode of using it is to make it into tea, similar to chamomile.

MODE OF PRESERVING CURRANTS UNTIL VERY LATE IN THE YEAR.—If a common garden net is spread around and all over a collection of currant-bushes the currants will be kept in a state fit for use for months after the ordinary season has passed. I have this day (September 19) par-

taken of very superior currant-pudding made from currants preserved in the way I have mentioned. In favourable seasons they have thus been preserved, in an open situation at Malton, 20 miles north-east of York, in excellent condition, until quite the latter part of November.—R. F. WHEELER.

BEES.—Your correspondent, "J. H. Payne," in his last month's communication on bees, says, "that the honey season may certainly be pronounced a very indifferent one, and in his locality (Bury) a very bad one." The same report cannot be made of the district round Ipswich; it is here considered good, and honey, which was sold by the cottagers in 1850 at 10d. and 1s. per lb., is this year offered at 8d. Of Wasps, he also adds, that he had seen only one working wasp this summer; here they have been abundant, and the hives of cottagers have suffered severely. Weak hives have been taken possession of by the intruders, and others have been burned early, to save the honey that was fast being carried away. Indeed, the wasps have been most formidable and persevering in their attacks on the hives, owing, probably, to the scarcity of our wall and stone-fruit crops. In some standing barley near me, the mowers were obliged to retreat from a portion of the field until the wasps could be destroyed; and the boys have had a high treat every evening in burning their nests. A lady's gardener, to save the little choice fruit that he had, in order to send it to his mistress in London, finding prevention against their ravages useless, sought out their nests, and destroyed, in the vicinity of his garden, twenty-seven. One fact is curious—the wasps, though so abundant out-of-doors, have seldom entered the houses, and the grocers' shops in the neighbouring town have been comparatively free from them.

SCYTHES.—Mention is made in your last number of "Boyd's self-adjusting Scythe." A complaint is often made by workmen of their scythes not acting well, of the edge not cutting uniformly, and the form being wrong, &c.; now the form may be tested by a very simple experiment. Let a man, with a piece of chalk in his hand, walk up to a high wall, or a barn-door, and raising it as high as he can, strike a curve from right to left; the line so traced is the exact form that his scythe should be; and if he applies the edge of it, and finds it to correspond, it will cut uniformly from point to heel, and save him much trouble and labour.

TO CORRESPONDENTS.

MULBERRY (*Heigham Lodge*).—Your Mulberry-tree (twenty years old) is not at all too large to move if you make a trench round it now, and cut all the roots at from four to five feet from the stem. It will be a great assistance to your operations next March, but still better if you could put off the work till next October; but the Mulberry is one of the easiest to remove of all our fruit-trees. The roots are very soft, large, and spongy; the edges of the cuts should be made quite smooth.

CLIMBERS AGAINST A HOUSE (*Ibid*).—Four climbers to plant between the dining-room windows may be *Jasminum nudiflorum* and *Chimonanthus fragrans*, to flower in winter; *Ceanothus azureus*, the finest blue we have in the autumn, and *Clematis Sieboldi*, a passion-flower-looking sort, which blooms all the summer and autumn. In the same space as the last we would plant *Clematis azureus grandiflora*, the second best *Clematis* we have.

FLOWER-GARDEN (*M. E. S.*).—We regret that our work does not embrace the subject you propose, for the good reason we have often assigned that no one can possibly lay out a garden without being on the spot, or after seeing the locality. All that the best head in the world can do in these things is to give suggestions about a plan proposed, or alterations in a picture of arrangements as they stand at present.

MAGNOLIAS (*Julius*).—*Magnolia conspicua* will do with you at Run-corn perfectly well in the open borders of a shrubbery, and will flower in April before the leaves come out. *Andromeda* and *Kalmia* must have peat to grow in. These are low borderers, and require no wall or any protection; and may be transplanted at any time, as they carry a ball with the roots. *Magnolia grandiflora* requires a wall to flower it well, except in the southern counties; and all the *Magnolias* delight in deep light soil with a damp bottom. You ought to have *Magnolia purpurea*, a low bush for the front of a good shrubbery. *Andromeda floribunda* is the best of them, an evergreen low bush that blooms a long time in succession. If you make a peat bed for them, by all means have a few plants of *Ammyrine barfolia* round the outside; it is the neatest thing among all the "Americans." We shall this winter furnish lists of the best things from among the hardy trees and shrubs in the country.

BEES.—X. Z. says, "On August 15th I united the bees of a cottage-hive by driving with a weak swarm in one of Neighbour's Improved Straw-hives, but found the comb so black, that I opened the holes of communication, and placed it over the united stock, that they might hatch out the brood and carry down the honey into their own hive, which only weighed about fifteen pounds. When had I better take it off?"—In all probability the whole of your bees will be found on examination to have gone into the upper hive; and if so, driving must again be had recourse to, and that as soon as the brood in the upper hive is hatched.

BEES—*Ivy* (W. A. E.).—Let your bees remain where they are, and place your swarms next year to the north. You might remove them two or three miles very safely, but removing only a short distance would be attended with very great loss. Your bees carrying in pollen have brood in their hive. The Ivy-flower abounds in honey.

BEES—*Rosea* inquires why "bees, in a Payne's Improved Cottage Hive, are fanning outside when there is a feeder on the top of a very weak cast; the thermometer, at 10 A.M., outside the hive, 58°; inside, 63°?" A feeder being upon the top of the hive, and it being a very weak stock, it is only reasonable to imagine that it contains food, which in this mild weather, causes considerable excitement amongst the bees, which is the reason of their fanning.

YORKSHIRE LILY (W. D. Payne).—As far as we could make out, your bulb is *Nerine venusta*, but we were put off the right scent by supposing it to have become naturalised in the locality. No wonder we could not trace it there.

ROSBARY (J. S.).—Nothing could have been less considerate than the way the rosary was planted. The Chinas, Bourbons, Teas, and Hybrid perpetuals, all at one end, in eight beds, followed by eleven beds of June roses only; why, this rosary must have looked like a pig with one ear. However, as it is high time to replant the whole over again, reduce your number of June roses, and let all the beds have two-thirds at least of the autumnal flowers, then go on increasing the best sorts from our lists, and reduce the June ones in the same ratio. We would get rid of the hybrid Chinas altogether, except a few in the two central beds, No. 7.

BEES—*A Country Curate*, in answer to "Melissa," says that, "If she is bent on removing her hives to a north aspect (of the advantage of which method of wintering, however, I feel doubtful, though it has certainly answered in many instances), it should not be done till the bees have resumed an inactive state, or she would hazard the loss of many hundred bees out of every hive so moved, who being tempted out to gather pollen would return to their old quarters, and perish. We have a great abundance of *Ivy* in this neighbourhood, which, in mild October, gives an astonishing quantity of both pollen and honey, so that my bees, when the weather permits, are as active as it is possible for them to be all through October, and even far into November. This remarkably mild autumn, for instance, when they have so evidently been gathering honey, &c. I see the combs in my strongest hives glistening with it as they do in spring, it would be almost fatal to move the hives yet a good while. My advice, therefore, to "Melissa" is, by all means, to wait till the bees have ceased working for the year—then I imagine the change may be effected even with advantage. Perhaps her bees have long been idle; if so, her discretion will teach her if she may safely move them now. A straw top may certainly be used on my hives as well as on Mr. Golding's, but I much prefer, and always use myself, a wooden one in preference. How to construct it, and to fasten it on to the top of the hive, as well as the use of the holes, will be found fully described at pages 70 and 71 of the "English Bee-Keeper" (Rivington's), where is an illustration of my hive. Your correspondent must, by no means, join hive No. 1 to hive No. 4, leaving 2 and 3 between them; either she must move away 2 and 3, and set the joined hive in their place, on one of their stands, or she must join 1 to 2, and 3 to 4; there will then be no fighting nor loss of life. The holes in my crown-boards are distant from each other about three inches; they are two inches, at least, in diameter, and they serve not more for feeding than for covering, with one or more glasses in the season."

NAMES OF FRUIT: PEARS (W. H.).—No. 1. Hacon's Incomparable. 2. Bishop's Thumb. 3. Glout Moreau. 4. Beurré de Rance.

CLIMBERS FOR COLD GREENHOUSE (W. T. K.).—As you have no means of applying artificial heat, plant in one space *Tecoma* or *Bignonia fuminoides*. Either of them will flower freely with the roots confined in boxes. In the other space plant similarly *Jasminum grandiflorum*.

ASPARAGUS SEEDLINGS (H. C. B.).—These, which are too thick, allow to remain until next April, which is the proper season for transplanting them. The grubs in your Apples are the larvae of some moth, probably the Codlin Moth. Apricot and Peach-trees require to be cut back at the time of planting.

SALT (A. A.).—Salt dug into the soil now will not injure a spring crop, but this is not the best time for applying this manure. Slight sprinklings among a growing crop is the proper mode of application. The only mode of getting rid of *Horse-radish* is to trench the ground, and pick out every fragment you see, and then to dig up every plant of it as it appears afterwards. No application of salt that would render your garden barren will kill the *Horse-radish*. Salt applied to the surface now, as well as lime and soot frequently sprinkled over the surface in the evening, will thin the slugs.

WINTERING GERANIUMS (L. H.).—We have nothing to add by way of advice to what Mr. Beaton and Mr. Fish have said in recent numbers on this subject.

PLANTING ORCHARD WITH POTATOES (P. V. M. F.).—There is no reason why you should not have a sound crop "on a rich, crumbly soil on a red-sandstone subsoil," provided you plant this month as we have directed, and the trees do not overshadow the soil too much. Good Potatoes cannot be produced under trees. As you are about to keep a horse, we should, in preference, sow Lucerne.

FERNS FOR A WARD'S CASE (Filice).—*Woodwardia radicans*, *Dryopteris Billardieri*, *Asplenium odontites*, *Lycopodium denticulatum*, *L. cesium*, *Doodia lunulata*, and *Adiantum pubescens*. We fear that both *Gymnogramma chrysophylla* and *Polypodium aureum* are too tender to be kept in a parlour where there is only a fire during the day.

ROUGH PLATE GLASS (C. B.).—We should have no hesitation in using this for a vinery—indeed, we should select it. We know that it is successfully used for this purpose by Mr. Wilson at Stamford Hill. If the ventilators are the whole length of the back of the house, or nearly so, and the front lights can be opened, there is no need for the roof sashes to be moveable. The draught will not be injured by dipping under the door-way, provided the flue be otherwise well made.

AUTUMN-PLANTING POTATOES.—W. T. writes to us as follows:—"In reference to your strong recommendations to set potatoes in

November, and previous to following them, I wish to inquire whether peculiarity of climate may not cause exceptions to the general rule? A few years since I did set a small bed of early potatoes as an experiment; the winter turned out so mild that they were all above ground in February, and I had the greatest difficulty in preserving them from the spring frosts, and which I was only enabled to do in consequence of the bed being so small a one. Our winters here (the south coast of Pembrokeshire) are peculiarly mild; last year the fuchsias out-of-doors, in tolerably sheltered places, never entirely shed their leaves, and were in flower after Christmas. As I am writing, and you encourage correspondents to give you their different experiences, I shall mention that I have lately been shifting my *Pelargoniums* into smaller pots, and found, that where I had used pounded oyster shells for drainage, the roots were stronger and healthier than when broken crocks had been employed."—We are obliged by these pieces of practical information—they are always valuable. If you plant your potatoes late in November, they will not come up prematurely, unless sprouted sets are planted. If any do come up in early spring, draw a little earth over them.

CINERARIA MARITIMA.—We are obliged by the information that Messrs. Veitch, of Exeter, and Mr. J. Gilbert, St. Margaret's Green, Ipswich, can supply this plant.

CARROTS GROWING FORKED (H. E. M. O.).—We think that sowing these in ground with a rich surface is the cause of their being forked, as you describe them, "all fingers and thumbs." If sown in trenched ground, with a little manure turned in with the bottom spit only, and with the soil not rich, we think you will have straight Carrots.

CONSERVATORY (H. H. E.).—As this, built over your hall, cannot be heated by hot-water, nor is a flue permissible, then we recommend a gas-stove. Other stoves produce more deleterious gases without any means for their escape. A tube from the top of your gas-stove, and through the roof or side, could carry off all the fumes.

GARDENERS' MAGAZINE OF BOTANY (T. F. I.).—We do not know of any reviews of it. Buy a number and judge for yourself. The names of the contributors are a guarantee that the contents may be relied upon.

DOUBLE FEVERFEW (J. Newland).—In mercy to you we will not insert your offer; you would be overwhelmed with applicants. We had hundreds of letters for Pumpkin-seeds. We do not know that with a white-edged leaf. The varieties are innumerable.

BESKIRE SOW AND COCHIN-CHINA FOWLS.—D. L. (who should have sent her address) wishes for a sow from three to six months old, and for some of the true Cochin-China fowls.

THOMPSON'S WATERING-POT.—The Rev. J. S. L. wishes to know where this can be purchased. The piping for your greenhouse should be three inches in diameter. Your specimen, we think, is of *Chorasmia nana*.

LILAC IN BLOOM.—Mr. T. Heath, of Erith, Kent, says:—"I have now (October 25) a Lilac in full bloom, in my garden, situated close to the river Thames, with a cold north-eastern aspect. The bough is full of buds, and the bloom comes from the buds, which gives it rather an extraordinary appearance. I can account for it in no other way than from the mildness of the weather. I have also a Fuchsia in the open air, of which leaves have died off, and is now almost in full leaf again."

DISEASED CABBAGE (An Old Subscriber).—The specimen sent is totally destroyed by the Ambury or Club-root, and what you call "worms," are a species of *Julus*, Millepede, which is believed to feed upon putrid vegetable matters. Your soil being gravelly, is of the description most liable to the Ambury, and we should think that it must be very poor soil, and that watering during our dry summer and autumn must have been neglected, or the cabbage could not have been in such a state. Dig into every vacant piece of ground a very heavy covering of gas-lime, and put on a good dressing of clayey marl and stable manure, with every crop, until you have improved the staple and fertility of the soil.

MANETTI ROSE (*Rosa alba*).—This is a variety of the Provence Rose, with deep pink petals, rather paler at the edge. It was introduced by Mr. Rivers, of Sawbridgeworth, a few years since. *Salpe* is the produce of the roots of *Tarcea pinnatifida*, but it may be obtained from the bulbs of the English orchids, *Orchis mascula* and *maria*.

HESPERIS MATRONALIS (E. L. K.).—This is a hardy herbaceous plant, but we have no doubt it might be grown in a window. The London Florists will supply you.

CHEAP WEEKLY PERIODICAL (A Subscriber).—It is quite impossible for us to answer your query, unless we know what kind of "knowledge" you desire.

PIT (A. B. C. H.).—Your pit will do for wintering Geraniums, &c., and for growing Melons, as you wish afterwards. Smith's *Introduction to Physiological and Systematic Botany*, will suit you.

NAMES OF PLANTS (A. W., Sydenham).—One is the Pink-flowered Mallow, *Malva strans*; and the other the Nutmeg-scented Geranium, *Pelargonium odoratissimum*. (*Queen Mab*). We think the shrub is the common Virginian cedar, *Juniperus Virginiana*; the other plant is a variety of *Salvia Grahamii*. *Hepatica* will succeed in pots, but require to be placed in a cold frame, or plunged in the ground, during the winter.

FLOWERS IN A ROOM (Caroline).—*Cactus*, or *Epiphyllum truncatum*, will last in bloom in a parlour nearly all the month of November, and *Chrysanthemums*, of sorts, in succession to Christmas; then forced *Hyanthas* and other bulbs. Read also Mr. Fish's lists for winter-flowering plants in-doors.

GLADIOLUS SOWING (Sarah).—Sow the seeds from your Gladiolus now, if you have means of keeping the seedlings from the frost, or you may defer sowing till February. Whether they will come true, depends on the sorts, and on their being out of the reach of pollen from other kinds. We cannot make out your meaning about the *Oxalis*.

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WEEKLY CALENDAR.

M D	W D	NOVEMBER 13—19, 1851.	WEATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
13	Tr	Green Whistling Plover seen.	30.017—29.986	47—34	N.W.	—	16 a. 7	13 a. 4	7 51	20	15 36	317
14	F	Larch leafless.	30.248—30.120	46—19	N.E.	—	18	11	8 56	21	15 27	318
15	S	Beech leafless.	30.293—30.170	43—31	W.	—	20	10	10 8	22	15 18	319
16	Sun	23 SUNDAY AFTER TRINITY.	30.084—29.991	53—29	S.E.	0.06	21	8	11 27	23	15 7	320
17	M	Titmice now houses.	30.094—30.044	48—35	S.W.	0.04	23	7	morn.	24	14 56	321
18	Tu	Widgeon comes.	29.888—29.468	55—45	S.E.	0.56	25	6	0 48	25	14 44	322
19	W	Sun's declination, 19° 28' s.	29.098—28.810	56—43	S.E.	0.06	27	5	3 8	26	14 30	323

ALTHOUGH we do not purpose in these biographical notes to stray far from the ample list of worthies who were natives of the British islands, yet there are a few who, by example, by precept, and by personal visits to our shores, had such an influence over our gardening, that they are entitled to be tenants of one of these pages. The first of our continental neighbours to whom we were indebted for an impulse in this art was Holland, and having surpassed our teacher, we next arose to strive for pre-eminence with France, to whom, as a teacher, we were also largely indebted. At the close of the 17th century, Louis the 14th was the lavish despot of that country. His vanity and ambition, however, conferred this benefit upon his country, and thence to such nations as had intercourse with it, that in ministering to the gratification of those passions, he became a munificent patron of the Arts and Sciences. Horticulture participated in the general encouragement. His father had commenced on a diminutive plan, the Trianon, but Louis the 14th ordered the creation of the stupendous and splendid Gardens of Versailles, Marli, and Fontainebleau. Partaking of the spirit of the monarch, the nobles and wealthy members of the community aimed at distinction by the display of Horticultural taste. Among these, the Gardens of St. Cloud, belonging to the Duke of Orleans, were particularly to be distinguished. The best scholars of the country united in lauding the prevailing taste, and the praises of Horticulture resounded in the verses of Rapin and Boileau. Quintinie was the prince of French horticulturists; as Le Notre was of their garden designers.

JEAN DE LA QUINTINIE was born in 1636 at Chabanaiss, in the old province of Angoumois, now included in the Department of Charente; and the chief notoriety of that insignificant town is his father's residence, which is still preserved and pointed out. Quintinie was sent very young to be educated at Poitiers, and progressed rapidly in his studies under the tuition of the Jesuits. Being intended for the legal profession, and having concluded a course of jurisprudence, he then proceeded to Paris to be admitted as an advocate. He was beginning to be distinguished in his profession, when he was persuaded, by the prospect of more rapid advancement, to retire from the law courts, and to devote himself to the education of the son of one of the king's chief ministers, M. Tambouzeau. His leisure moments he devoted to his favourite pursuit, the cultivation of the soil, and during a tour in Italy with his pupil he lost no opportunity for studying the gardening of that country; nor did he neglect to take advantage of an interchange of opinions with the most distinguished European gardeners, with whom, for more than thirty years, he continued an extensive correspondence. Twice he visited England, and the proprietors of "the stately halls" of our nation did not undervalue his abilities. James II., then on the throne, made him brilliant offers to tempt him to accept the superintendence of the Royal Gardens, but his love of home prevailed, and he declined accepting the apparently advantageous offer. It is well that he did so, for James soon after lost his crown, and Quintinie would, probably, have lost the opportunity of creating the vast and productive fruit and kitchen-gardens of Versailles for his own sovereign. It has been said, that his horticultural correspondence, in three volumes, was published at London about this time, but we can find of them no traces, nor any other record of him in this country, except a letter dated 1668, on *The Culture of Melons*, published in Nos. 45 and 46 of *The Philosophical Transactions*, at which time he was forty-two years old. When Quintinie was about thirty-six, Louis XIV. had resolved to display all his magnificence at Versailles. Le Notre had traced out the pleasure grounds, and had succeeded in developing what was then considered the grand

and the beautiful in garden decoration, and then Quintinie was called upon to introduce the useful. The soil of the kitchen-garden was so unproductive, that it had been contemplated to remove the culture of its inhabitants to St. Cloud. Quintinie, however, knowing the importance of having the kitchen-garden near the palace, determined that it should not be removed, and succeeded, we are told, on a space of thirty-six arpens, equal to about thirty English acres, in forming a kitchen-garden that became "a model for all Europe," but it was at the expense of more than twelve thousand pounds. He raised walls unnumbered, he irrigated by the aid of an extensive aqueduct with side-branches communicating with all the beds, and he created a new soil by importing from a distance that which was fertile. It met with the entire approbation of the king, of whom it was said, "after joining in council with Turenne and Colbert, he trained trees with Quintinie." So entirely did he obtain the approval of his royal employer, that, in 1687, he was made Director-general of all the Royal Fruit and Kitchen-gardens. Sontol Victor thus recorded Quintinie's success in verse:—

At gay Versailles, the brightest Court below,
Where pleasures dwell, and joy unmix'd with woe,
Pomona mourn'd, nor would her grief be tame,
Of honours void, and conscious of her shame:
She mourn'd to see, when our auspicious king
Made all things flourish, and restor'd the spring,
And better days, that she alone should find
The Heavens adverse, and prove the Earth unkind.
In vain she planted—Earth refused the root,
And wither'd trunks denied the promise'd fruit.
Wreath Laurels, wreath—a lasting crown prepare,
For learn'd Quintinius, and repay his care.
Tho' cold unliving suns, and barren earth
Oppos'd his art, nor would assist the birth,
He ventur'd on, and his industrious toil
Bestow'd new beauties on the horrid soil.

Success now flowed in upon him, and he became not only superintendent of the Royal Gardens, but of those of the chief nobility of the Court; he arranged those of Chantilly, for the Prince de Conde; of Rambouillet, for the Duke de Montausier; of St. Owen, for M. Boisfranc; of Seaux, for M. Colbert; and of Vaux, for M. Fouquet. Royal favour was more permanent to the gardener than to higher ministers of the king's will, for Quintinie was never dismissed, and died at Versailles, in 1688. Two years after Quintinie's death, his son edited his father's posthumous work, *Instructions for the Fruit and Kitchen Garden, with a treatise on Orangeries, and some Reflections upon Agriculture*. In 1693, it was translated by Mr. Evelyn, and is known in England chiefly by that edition, which appeared under the title of *The Compleat Gardener*. Messrs. London and Wise published it under the same name, but abridged, in 1699. We are told by Switzer, that Quintinie died lamented by all his ingenious contemporaries, and that Louis expressed his regret, by observing to Quintinie's widow:—"I am as great a sufferer as yourself, for I despair of ever repairing the loss I have sustained."

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 49.5° and 35.7° respectively. The greatest heat, 87°, occurred on the 19th in 1833, and the lowest cold, 18°, on the 16th, in 1848. During the period, 78 days were fine, and on 90, rain fell.

It has long been known that, when trained against flue-heated or conservative walls, many plants will survive our winters, which would perish if exposed to them, either in our borders or even against a common wall. Now a conservative wall protects the plants against it by warming the air previously to its coming in contact with them, and it has often been a query with us whether it would not be possible so to heat a wall and border as to preserve tender plants, sustained by them, in bloom and beauty all the winter, as well as thus to force fruit, without the protection of any glazed covering. Some recent facts seem to support an affirmative answer to that query.

At some steam saw-mills, situated at Winchester, a Black Hambrough Grape is trained against the steam-engine chimney, and a stream of hot water is running

constantly in a gutter upon the border in which its roots are growing. The produce this year was extraordinary, both as regards the total weight of the crop and the fineness of the berries, and they ripened at least three weeks earlier than the same variety of grape on a similar aspect, under glass, unaided by artificial heat.

In addition to this fact, there is the openly-exposed hot-water aquarium of the Messrs. Weeks, Nurserymen, in the King's Road, Chelsea. We were there on a frosty morning at the commencement of this month; so frosty was the air, that the steam arising from the water, heated only to 75°, could be seen in wreaths rising from its surface. There had been a sharp frost during the preceding night, yet the leaves and flower-buds of the *Victoria regia* were green and vigorous, as were those of the *Nymphaea cœrulea* and *dentata*, and *Limnœcharis*

Humboldtii was actually in flower. The air at a distance from the pond was then about 40°, but we were assured by Mr. Donn, the foreman of Messrs. Weeks, that during the coldest nights, the water in the aquarium being at 80°, the temperature of the air at one foot from its surface had never fallen below 85°.

Another interesting fact connected with hot-water aquariums is told in the following letter, with which Messrs. Weeks have favoured us:—

"We put into our *Victoria regia* pond in April a score of gold fish, which have now attained a large size, and are of a most beautiful colour. They have propagated to such an extent that the pond is completely filled with fish in different stages of growth, and the *very minute ones are well coloured* (a desideratum which could only be gained in seven years in a *cold* pond). The water is kept at a temperature of from 70° to 80°, consequently they are continually spawning, and increasing indefinitely. We are induced to give this information, being certain that it might become a profitable branch of rural economy, as they come to maturity in an incredible short time at a mere nominal expense. The most lovely tropical aquatics could also be cultivated. Also many half-hardy plants will stand on the rock-work surrounding ponds, as the heat and evaporation from the water would repel, in a great measure, severe frost. Thus both profit and pleasure would be combined in making such useful and ornamental appendages to the garden. The heating apparatus could be erected very cheaply, and would warm a dwelling-house, or greenhouse, and be brought under ground to heat likewise the pond."

What Messrs. Weeks say can be done, is actually done on their own premises, and the arrangement is worthy of inspection. The beneficial effect of the warm water upon gold and silver fish, we are informed, has been long known to the artisans employed in the Lancashire manufactories, who have tanks supplied with hot water from the engine boilers, for the purpose of breeding and growing those fish for sale.

GARDENING GOSSIP.

Our two gardening contemporaries are at issue as to the delinquency or innocence of Mr. Edwards, for winning a prize with a stand of Tulips, containing one named Pilot, not of his own growth. We shall not enter more fully upon the subject until we have seen more evidence. The Tulip is said to have been Mr. Turner's—now the best of all evidence will be that of this gentleman, and we entertain no doubt, that if called upon, he will give that evidence honestly and fearlessly. Let us observe, also, that the subject is too grave to be treated flippantly, for if the gentleman is guilty of the fraud and falsehood alleged, he is totally unworthy to hold office, as he does, in a society which must be without authority so soon as those who have influence there cease to be acknowledged as honourable.

There is no doubt that we are upon the eve of great changes in *Floricultural Societies*. Each will be looked

up to for some recognition of the points to be aimed at by exhibitors. The Norwich and Norfolk Horticultural Society has not only decided that all flowers shall be judged according to the principles laid down in Glenny's "Properties of Flowers and Plants," but they have also had an abridgement of them printed for circulation among the members, so that every exhibitor knows what he is to aim at, and the judges' instructions are positive. Many others have come to the same resolution, but have not printed any portion. The Bury florists have, we are told, reprinted a good portion of the work, and published the rules as their own. If so, this is an unwarrantable, because unjust, appropriation. It may be hinted to the Societies, that the resolution to judge by the properties of flowers, should be printed in their schedule, or the exhibitors will be none the wiser.

Tulips have always been a leading favourite among true florists, and men in the humblest walks of life have often suffered great privations in their mode of living, rather than be behind their neighbours in the quality of their collections. For many years, the arrangement of a bed of Tulips used to be after one fashion, we mean of course among those who professed an arrangement at all, for many considered nothing but the height of the different rows, and mixed them any-how.

Of this favourite flower there are three classes: *Roses*, which have white grounds, with various shades of red; *Bizarres*, which have yellow grounds, with any colour for the markings; and *Byblomens*, which have white grounds, with lilacs and purples for the markings. Presuming that two of the same class ought not to come together in the same row, the arrangement used to be thus—1 meaning Rose, 2 Byblomen, and 3 Bizarre:—

1	2	3	1	2	3	1
2	3	1	2	3	1	2
3	1	2	3	1	2	3
1	2	3	1	2	3	1

In 1832, or 1833, *The Horticultural Journal* contained instructions for a beneficial change, by making the bed uniform—thus:—

1	2	3	1	3	2	1
2	3	1	2	1	3	2
3	1	2	3	2	1	3
1	2	3	1	3	2	1

By this arrangement, instead of the same class going in a sloping direction from one side of the bed to the other, they divided right and left, herring-bone fashion; and whatever class was on one side of the middle row was also on the other. This alteration greatly improved the appearance of the bed, and even this was improved upon by the same writer, by directions that, as well as the same classes, there should be the same varieties. Thus, if the middle flower was *Louis XVI.*, *Rose Claudiana* should be next on each side, and *Bizarre Polyphemus* next on each, and *Rose Ceres blanche* outside; by thus putting all the flowers in duplicate, the bed presents a most beautiful and uniform appearance; because, as there are many degrees of brightness, darkness, and colour on each class, it would be as awkward to have a light rose on one side and a dark one on the other as it is to have two different classes.

In a discussion on *keeping the Dahlia through the winter*, there was a general complaint, that although some tubers kept as sound as they were when taken up, the collar was found to have completely decayed under the skin, and all the eyes destroyed.

The cause of this was variously attributed, but the most rational appeared to be this:—If the plant be cut down before the root was taken up, the stem bled and the moisture ran down the hollow and lodged there. When the tubers were taken up no attention was paid to this fact, and they were frequently put away in that state. This moisture was supposed to cause the rotting of the stem downwards, and hence the mischief. In an article on the Dahlia, published years ago, it was recommended to drain the moisture away immediately, by placing the stem downwards; and whether they were hung up, or packed in sand, or put away in pits like potatoes, or in whatever way they were kept, to place the stems downwards; and the individuals who had observed this had invariably found them free from the disorder. This is worth following at the present season, for it is quite certain the precaution can do no harm. It is, perhaps, the freedom from the moisture, which exudes on cutting down, that causes all pot-roots to be so comparatively sound—the plant drying up on the root must be beneficial; and there is no way of preserving pot-roots better than laying them on their side until perfectly dry, and even until they are wanted in the spring.

E. Y.

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.



LAVENDER-LIKE GREVILLEA (*Grevillea lavendulacea*).—*Gardeners' Magazine of Botany*, iii, 257.—This new plant is a handsome addition to this beautiful genus of New Holland plants. Seeds of it were sent from the Swan River Settlement by Mr. Drummond, to the Messrs. Henderson, of Pine-Apple Place, London, with whom it flowered, for the first time in this country, last spring, when it was exhibited at the Horticultural Society's Rooms, in Regent Street, and was much admired for the brilliancy of its rose-coloured blossoms, and its close habit of growth. In a consecutive arrangement of the species it falls in next to *Grevillea rosmarinifolia*, with which it presents many points of resemblance, but is better than that species for the requirements of the gardener who competes for prizes.

The genus was named by Brown in honour of *U. F. Greville*, a patron of botany. It belongs to the Natural Order of *Proteads* (Proteaceæ), and to the first order of the fourth class in the Linnæan system, *Tetrandria Monogynia*.

Proteads are proverbial for the diversity of aspect they exhibit among the genera, and *Grevillea* is no less so for the diversity of appearance presented by the different species, so much so, indeed, that Brown himself, the author of it, was led away into the error of mistaking no less than seven of the species, which he raised to the dignity of so many genera; Salisbury also named two more as heads of new genera, so that *Grevillea* now stands saddled with nine synonyms. All Proteads are apetalous, that is, the flowers have no petals, but the calyxes lengthen out, and are coloured like petals in the genus before us, and in others. Botanists apply the term *perianth* to this form of flower, as they do to the flowers of the tulip, hyacinth, gladiolus, &c., of all which the real petals cannot well be made out from the sepals, or divisions of the calyx.

B. J.

Propagation and Culture.—Many of the *Grevilleas* produce seeds freely in this country, by which they are easily increased. March is the best time to sow them, and a sandy compost, with loam and peat, or, say, two-thirds peat and one-third loam, with enough of sand to make the whole loose, is the best compost for the seeds and seedlings; a smart bottom-heat to get the seeds to vegetate quickly is also a sure step for almost all greenhouse seeds; but as soon as the seedlings are fairly up, the pots should be changed to a cool, airy place, and be shaded from the sun for a while, for fear of scorching the young things. For cuttings, choose the half-ripened tops of the small side-shoots; an inch-and-a-half will be long enough. Thumb-pots are by far the best for amateurs to put in all cuttings of hard-wooded plants; the compost should be at least one-half sand and the other half of peat, screened quite fine; then a quarter-of-an-inch of sand on the top in which to fix the cuttings quite firm, so that the bottoms of them rest on the compost, into which the young roots delight to run as soon as they are formed, and from which they are easily separated when it is time to pot them off. Let the thumb-pot be thus filled, then watered, after that pressed down, and planted close round the side, then watered gently to press the sand close to the cuttings, and when the cuttings are nearly dry, plunge the little pot into another pot a little larger, and filled with sand over a good drainage, and a wine-glass, or small bell-glass, will cover the cuttings and pot; then, if the sand in the outer pot is kept moist, the cuttings will want very little of it. The pots should not be put into bottom-heat until the cuttings are near rooting.

When the young plants from seeds or cuttings are four inches long, stop them by merely taking out the top bud, to cause them to come branchy from the bottom. This *Grevillea* seems a free-branching plant, and, therefore, will not require so much stopping afterwards as some of the species. When it comes to a flowering size, the best way is to prune it pretty close as soon as the flowers are over, and to encourage a free growth. A month or six weeks in a close warm pit, or the cool end of a stove, would make up for the lost time in pruning so late. Woody plants like this which bloom in April, or early in May, should never be pruned in the spring; and fresh potting them before they flower does little good, unless they are pot-bound. It requires a generous open compost when old enough to flower, say one-half peat and one-half loam, with a little sand and leaf-mould, to make the whole mellow, rich, and free for the water to pass through freely.

D. BEATON.

THE FRUIT-GARDEN.

THE VINE—PLANTING, PRUNING, &c.—Some correspondents having inquired as to the proper time for planting the vine, together with a list of useful kinds, &c., we proceed to discuss the matter; and, at the same time, offer a little advice about pruning.

As to planting; the vine will grow, planted at almost any season, but *merely growing* is not the present question, which is, as to the most successful period. Everybody prefers the vine raised from what are called "eyes," that is to say, single buds, the plants from which bear a closer resemblance to seedlings, perhaps, than by any other mode of propagation; for whilst layers are but too apt to produce roots on one side only, those from eyes will throw out roots equally in all directions; and that

this is a great advantage to begin with, no one can doubt. Much, also, depends on *uniformity of growth*. A vine from an eye, cultivated in a liberal manner from its first sprouting, has a more direct continuity of sap-vessels than the layer; whilst having grown, as it were, by instalments, with now and then a severe check, it is frequently made to carry the marks of age betimes. Now, the formation of a bold stem, with a free continuity of sap-vessels, is a circumstance of no mean importance; a free transmission of the raw material (if I may thus term it), of which the fabric of the tree is built, and the vinous produce of which it is compounded, being a matter of much importance, especially when a great demand exists in the shape of a heavy crop of grapes. The use of *eyes*, therefore, cultivated by a most liberal system, has now become all but universal; and our nurserymen, who were wont in by-gone days to possess a considerable extent of what were termed "stools," that is to say, strong old bushes planted out-of-doors to propagate from, have, in the main, broken them up, and have betaken themselves to the eye mode of culture. Now there is not a doubt, that the more rapidly the eye is cultivated from the moment it commences sprouting, the finer will be the tree, and the more speedily established;—need it be added that the fruit also will be finer? Accordingly we find by a report of the Regent-street meeting lately, that Mr. Elphinstone, gardener to the Speaker of the House of Commons, exhibited grapes the produce of a vine grown this season from a single eye. We have the pleasure of knowing Mr. E., as also his relative, the gardener to the Speaker at Heckfield House (we believe), and may here observe, that, to use a homely adage, both gentlemen, as to vine-growing principles, have been tarred with the same brush as Mr. Mitchell, of Brighton; and I do hope, if this meet their eye, that it will not be considered a disparagement to be found in such company.

* As to the most proper period of *planting*, that must depend in part on the character of the plant. If an eye is to be used in the ensuing spring, it will, of course, be got to work *very early*, say in the course of January; and even then, it will of necessity be nearly the middle of April before the young aspirant can be committed to the soil. A plant from an eye of a former year, however, may be planted in the middle of March; earlier than which, we think, would be no real gain, there being some little danger of the soil becoming soured by much rain, if the roots had to lay long dormant in it. In planting out young vines, we must advise the use of a *special compost* immediately in contact with the roots. Not but that the soil of the border, if carefully made according to previous directions, is good enough, but it is not quite fine enough to promote speedy rooting, on which so much depends. Each vine may have a barrow of compost to "start" it in; and such may be composed of one-half turfy *sandy loam*, and the other half old manure and vegetable soil, adding a trifling amount of charcoal-dust, or fine-pounded old plaster, or lime rubbish from old buildings. The loamy turf should be chopped as fine as mince-meat with a sharp spade, and if procured six months beforehand, so much the better; the whole, of course, being well-blended; the hillock when put together will constitute an elastic and rich mass, as rapidly transmitting moisture as receiving it. We do not say that this is the only proper compost, nor affirm that it is the best in the world; but merely that it is a good one. We well know that soils or compost often lie close to our elbow, which contain in their own nature all the elements necessary to perfect success, and as fitting for the purpose as if brought a score miles at much expense. Still, the amateur has not, in general, a compost-yard like that of the gardener of my lord, and the advice here may serve to guide him in imitating such a compost. Whatever compost or soil is selected

to start them in, it *must* possess the power of parting with moisture freely; it should also possess liberal absorbing power, if not, it will be liable to the extremes of drought and saturation. Of course, the border is supposed to be duly prepared; the soil reaching up to the front sill, at which point the vine is generally made to enter, for no portion of the stem may be left exposed to the vicissitudes of the atmosphere. Vines, then, from eyes of one or two years old, having been pruned back considerably, merely leaving about three or four eyes or buds inside the house, should have the soil removed from their balls entirely; the old plan of turning them out with their balls whole is a deceptive one. In order, however, to get them out with as little damage as possible, the balls should be in a dryish state, or rather, what gardeners term mellow. A squeeze or two between the hands, first liberating the drainage materials, will readily accomplish this. The whole of the roots must be carefully uncoiled, and a level bed being formed on the compost, every root must be trained out its full length, like training the branches of a wall-tree. A coating of the prepared compost, about three inches thick, must be spread over them, and pressed close with the hand; but remember this must be done when the soil is *quite mellow*. This completed, it is an old practice to cover the whole with a little mulching, but this is a doubtful proceeding so early, and we should prefer a mixture of half old and coarse tan, and the other half charcoal of the size of peas. This will absorb solar heat to a considerable amount, and admit a free percolation of a little liquid manure occasionally in dry periods. Towards June a little mulch may be added with good effect.

With regard to planting the *newly-raised eye* in April or May, the practice must slightly differ. No squeezing of the ball here; the young fibres will be in so active and tender a state, that every care must be taken to let them into their new position undisturbed, so that no time may be lost. Still, it is possible to liberate with much care the points of some of the leading fibres, in order that they may invest the new soil as soon as may be. Care must be taken that such young and tender vines are *hardened down* nicely previous, and that no part of their stems is left uncovered outside the house.

Some gardeners plant about a foot away from the front of the house, and we think there can be no objection to the plan, inasmuch as it gives the roots more liberty, for it is not well to jam them against a dead wall. Care must be taken, however, to conduct the stem beneath the surface—perhaps to hook it down. Some caution in this respect will be necessary with young eyes, for if recently out of a house or frame, their skins will be tender; and, moreover, the lower leaves, which may by no means be stripped away, will, in part, preclude the possibility of the latter recommendation. We have known good and careful gardeners place a hand-light, or other spare glass, over the surface of the roots during the earlier portion of the first summer; and if the roots be kept carefully watered when necessary with tepid weak liquid manure, there is no doubt the plan is good, as tending to increase the ground-heat. Indeed, with chopped turf full of coarse herbage, and some warm dung and tree-leaves blended, we offer the opinion (simply as a speculative one), that a nice little bottom-heat would be created beneath the young vines, of infinite service in expediting their growth, and by no means inimical to their permanent welfare. It would be well, also, to mix a goodly lot of pebbly charcoal and some coarse sand with the fermenting mass, in order that when it becomes a kind of humus with age, a thorough percolation should be insured. The border next the house would have to be lowered to about a foot below the sill, and for thirty inches wide, and then the fermenting mass should be built a few inches above the

sill. The whole would subside a foot, or nearly so, finally; and top dressings, if necessary, might be used. We would, however, in such an *experiment*, use quite a third portion of coarse old turfy loam of a sandy nature.

And now, one of our correspondents requests advice about pruning, and the kinds for ordinary and useful purposes, and this we will endeavour to give. There are commonly three distinct methods practised for pruning, namely—

1st. *Spur pruning.*

2nd. *Long-rod pruning.*

3rd. *Ordinary, or common-sense pruning.*

Our readers must pardon our coining a phrase for the latter; but we thought it appropriate, and it is by no means intended to apply by way of sarcasm to the former two. For the benefit of the inexperienced we may as well state, first, the reasons for pruning; they are as follows:—

1st. The limitation of the old wood.

2nd. To impart an impulse to the growth.

3rd. For system's sake; to avoid confusion.

As to the limitation of the old wood; although a certain portion is absolutely necessary, yet the less the better, as there can be no doubt that, as Mr. Hoare observed, "naked branches are consumers, not producers," a portion of the sustentation being taken up by them in the character of albuminous matter. By the spur system, only one main branch is requisite, and this is suffered to extend the whole length of the rafter. By the long cane system, still less main stem is necessary, little more than the collar and a stump or two; but by the ordinary pruning, or what might be not unaptly termed un-systematic pruning, there is more old wood retained of necessity than by either mode. We do not wish it to be here understood that the choice of a system of training is determinable on these grounds alone; we merely feel it a duty to point candidly to defects as well as merits.

As an impulse to growth, pruning has a similar effect on the vine as on other deciduous trees in a rest state, and that effect is to give a renewed impulse to growth. By removing a portion of wood and buds, a greater amount of sap is forced into those remaining, and, of course, for awhile, greater activity ensues.

Pruning for system's sake, and to avoid confusion, is a matter so obvious as scarcely to need explanation. Nothing looks more satisfactory than a fruit-tree of any kind with its branches so disposed as that a meaning and a necessity appears for every branch.

Pruning on the spur system consists in carrying up one leading shoot to the back of the house, establishing thereon what are termed spurs, or what might, perhaps, be more properly termed, snags, from the front to the bark, as nearly as possible, at measured distances, and as far as may be placed *alternately* up the stem. About one to every foot is sufficient; perhaps better than more. These spurs are first developed as side-shoots, and in order to ensure their due and full development, they are produced during about three seasons. There are those who will run a cane up to the back of the house, and fruit it the whole length the next year, but this is not substantial practice; albeit, astonishing those who are not aware of the tendency of this *ruse*. A good cane nearly the length of the roof, and about three quarters-of-an-inch diameter, may be pruned to one-third the rafter length the first year, another third the second, and the remainder the third year. By this plan, supposing the rafter fifteen feet long, there will be about five large bunches the first year, ten the second, and fifteen or more the third; and this will be found to tax the powers of the vine heavily, perhaps too much. By this mode every side-shoot will be strongly developed, and, consequently, a selection may be readily made. The subsequent pruning simply consists in pruning

each of these back annually to what has been termed the "spawn eye," that is to say, the last eye at the base of the young side-shoot, although some leave another eye.

Long-rod pruning has for its object the production of larger bunches; and this it can accomplish, although, perhaps, the berries are smaller. The object here is to establish a stump with three strong branches, or, at least, collars; from each of which, in its turn, a shoot may be made to spring. These, by a regular system of pruning, are worked in successive lengths; the one bearing the whole length of the rafter; the second, half the length; and the third collar (recently pruned back), producing the renewal shoot; indeed, it has been aptly termed the "renewal system." There are other "long-rod" practices, but this is the most systematic one.

Ordinary pruning is such as we very commonly see practised on out-door vines trained against a house, where the leading shoots are carried almost at random, and at first chiefly with a view to get the house covered. Here the pruner selects according to the character of the wood, little heeding its situation; reserving the short-jointed and strong, and cutting away the weak. The shoots reserved are shortened back with reference to the space they have to occupy, say from three eyes to six or eight, as the case may be.

In all pruning, it is a maxim to cut an inch or so above the eye, not close, and to throw the slant of the cut the contrary way to the eye or bud. All vine pruning should be performed the moment the leaves are fallen; and we hold it good practice to patch each knife-wound with a little white lead immediately; this does away with the possibility of bleeding in the ensuing spring.

LIST OF GOOD GRAPES.

No.	Kinds.	Colour.	Size.	Form.
1.	Muscat of Alexandria	White or amber	1 . .	oval
2.	Black Hamboro'	Black	1 . .	roundish
3.	White Frontignac	White	2 . .	round
4.	Black Frontignac	Black	2 . .	round
5.	Royal Muscadine	White	2 . .	round
6.	Dutch Sweet-water	White	2 . .	round
7.	Black Prince	Black	1 . .	round
8.	Cannon-ball Muscat	White or amber	1 . .	oval
9.	West's St. Peter's	Black	2 . .	roundish
10.	Lashmar's seedling	White	2 . .	round
11.	Expérione	Black	2 . .	round
12.	Black Muscadine	Black	2 . .	round
13.	Miller's Burgundy	Black	2 . .	oval
14.	Claret	Red	3 . .	round
15.	Early Black July	Black	3 . .	round
16.	Black Cluster	Black	3 . .	oval

Of these, Nos. 1, 2, 8, 5, 6, 9, are the most useful house grapes in the kingdom.

Nos. 1, 3, 4, 8, 9, enjoy a very high temperature.

Nos. 2, 5, 7, 12, are best for greenhouse vineries.

Nos. 2, 5, 10, 11, 13, 14, 15, 16, best for open walls.

An apology is scarcely needed for not introducing the newer grapes; such would have made the list unwieldy. They can form the subject of a separate notice hereafter.

R. ERRINGTON.

THE FLOWER-GARDEN.

BOURBON ROSES—(Continued from page 82).

THE finest Rose among all the Bourbons is, unquestionably, the *Souvenir de la Malmaison*, a pale flesh-coloured centre, and white on the outside. I have already said that a ring of this planted round a large mass of the *Geant des Batailles* would form one of the most splendid rose-beds that can be made. The whitest Bourbon Rose is *Acidalie*, a compact, free grower, with good shaped flowers; but for flower-beds there is no white Rose that can be compared to the *Old White China*. *Armosa* and *Queen of Bourbons* are two fine lightish flowers to con-

trast with such dark ones as *Dupetit Thours* and *Paul Joseph*. There are so many fine Roses among the Bourbons for beds, that the following list of them comprises only varieties that are as good as their neighbours; for long lists of any thing are as likely to puzzle strangers as not:—*Acidalie*, *Armosa*, *Bouquet de Flore*, *Celimene*, *Dupetit Thours*, *Edward Desfosses*, *Emile Courtier*, *George Cuvier*, *Gloire de Rosamene* (young plants), *Henry Lecoq*, *Madame Angelina*, *Marianne*, *Paul Joseph*, *Phoenix*, *Proserpine*, *Queen of Bourbons*, *Reine des Vierges*, *Souvenir de la Malmaison*, *Suchet*.

The following Bourbon Roses are strong growers, not well adapted for beds, or standards in beds, but excellent sorts for pillars and low walls, or for filling up the bottom of a rose wall, where stronger climbers are apt to get naked:—*Amenaide*, *Cardinal Fesch*, *Gloire de Rosamene* (old plants), *Julie de Loynes*, *Le Grenadier*, *Madame Aubis*, *Madame Desprez*, *Madame Lacharme*, *Pierre de St. Cyr*.

CHINA ROSES.—If China Roses were sweet-scented, all the best sorts of them now offered for sale would be grown in beds in every flower-garden where room could be found; and as it is, of all Roses they are the best fitted for our present style of flower-gardening. For bedding-out they, too, are much better on their own roots, and the best soil for them is a light, rich loam; it cannot be too rich if the situation is naturally dry at bottom. About the middle of April is the best time to prune them, and all the weak and middle-sized growths should be cut down close to the ground; the stronger shoots may be left from six to eighteen inches high, according to their size and strength. For the first two or three years after planting, the best way is to cut every one of the shoots close to the ground, in order to get strong bottoms all over the bed. In low, damp situations, and in very exposed places, the frost often injures them when they are young; moss, three or four inches thick, is the best thing to protect them, but ferns, coal-ashes, sawdust, or evergreen boughs, will do. They will come from cuttings any time from March to October, but for a large stock, the best time is when the beds are pruned in the spring, as at that time one can get all the cuttings with heels to them by slipping off the pieces, instead of cutting under a joint in the more common way. Heeled cuttings of them require no glasses if they are put in a shady place, and they will root in any light sandy stuff. They ought to remain in the cutting-bed just twelve months, on the supposition that they are made about the middle of April, therefore they should have plenty of room, much more than is generally given to cuttings in general. They also should be planted in regular rows, in order that they may be the more easily covered between the rows to save them from frost. The *Old White China*, of which I have often spoken, is by far the best of them all for a white bed; *Clara Sylvain* is the next best white, and *Madame Bureau* the third best white. These three would make a bed, planted in the order I have them here, *Madame* on the outside, *Clara* next, and the old one in the centre. *Mrs. Bosanquet* is a good bedder by itself, and is the next shade to a white. *Eugene Beauharnais* would come in well behind it, and beyond that, *Napoleon* or *Mielex*; these three or four would give a fine shade when they were all in bloom; but there is nothing more difficult than to get good shaded beds of Roses in any class, as every plant has its own proper time of giving the best tint, so that one is never sure of them, and that is the reason why I would plant *Eugene Beauharnais* between the lighter sorts. *Cramoisie superieure*, in a mass, and edged with *Fabvier*, would make a splendid bed, and another bed to match might be made out of *Gloire de Rosamene*, edged with the common old *sanguinea*; this would be crossing the colours, *Fabvier* being a scarlet round a crimson, and *sanguinea* a crimson round a scarlet, as we may call the

Rosamene, which, when used for beds, ought to be called a China Rose, instead of a Bourbon; but it is neither the one or the other when seen in full vigour as an edge. For filling up the bottom of a rose-wall, *Gloire de Rosamene* is the best of all Roses; and for making bouquets of Roses in bud from September to Christmas the *Rosamene* and *Old White China* are the best; for bouquets of full-blown China Roses, *Clara Sylvain* and *Madame Brehon* are the best; the latter is the best favoured Rose of all the Chinas, and the best for a low wall.

Fabvier and *Henry the Fifth* mixed together, and edged with the *Crimson Fairy Rose*, would make a beautiful low bed, and *Fabvier*, edged with the *White Fairy Rose*, would be quite a charm. These Fairy Roses, however, will not last any time, unless they are taken up in the autumn and planted in cold frames; but they are so elegant in many ways about a choice flower-garden, that they deserve as much care as the best Verbenas. I once had all the walks in the rosary at Shrubland edged with the *Crimson Fairy*, but one sharp winter killed every one of them; there are several sorts, but the *Crimson* and *White* are the two best; they call them Miniature Roses now, and they were once called *Laurenciana*, but *Fairy* is the best name to ask for. The following list, like that of the Bourbons, is only a choice from a larger choice:—*Archduke Charles*, *Clara Sylvain*, *Cramoisie superieure*, *Eugene Beauharnais*, *Fabvier*, *Henry the Fifth*, *Madame Beaureau*, *Madame Brehon*, *Miellez*, *Mrs. Bosanquet*, *Napoleon*, *Prince Charles*.

TEA-SCENTED CHINA ROSES.—I well recollect the time when the first Tea-Scented Rose appeared in this country, it was called *Rosa odorata*, and was a blush-white Rose; we used to bed it out, after propagating it, in August or September, like the Verbenas, and, like them, we had to keep it from the frost in the winter. The best plant of it I ever saw died last June; it must have been twenty years old, and taken great care of all the time by poor old Mr. Lovett, who was gardener to the late Sir W. Middleton for three-and-thirty years, and to the present baronet until he was pensioned off with a cottage in the park, where he died, at a green old age, a few weeks after his favourite *Rosa odorata*; it stood in an angle formed by a chimney stack, which projected from the gable of the cottage, having a south aspect, and a narrow-leaved myrtle stood at the opposite angle. I believe neither plant ever had any protection; but except in such favoured situations, I think the Tea Roses in general will do little good in this climate, unless they are taken as much care of in winter as the myrtles; and we shall never see them in perfection in England until cheap Rose-houses are devised for them; the glass to be kept on from October to May, then to let them have the full benefit of our sun and air all the summer. It would be a good speculation to plant whole beds, or borders, with them, and thus covered, for cut flowers and bouquets of them all the winter, in the neighbourhood of London and other large places. After the first cost, the expense would not be much; a few small coals and cinders to warm a common flue in very hard frost would be all. A low wall, or fence, however, such as I want for the Geraniums, is all that is needed to enable us to bloom them in summer as well as they do in France; and every word I write about the Geraniums for such a fence, is applicable for these Tea Roses. I know gardeners who grow many of them in nine or ten-inch pots, in a very rich compost, for plunging out in the flower-garden from May to October, then take them up and winter them in cold frames, covered with wooden shutters and straw during very hard frost. When they are left out all the winter, a west aspect is the best for them, it secures them from the easterly winds and the morning sun—two of the worst things which can reach them when they are frosted.

I never saw a real white Tea-Rose yet; *Niphotos* and

Devoniensis were once called white, but they are far from it; light buff, blushes, and yellows, are their prevailing colours. *Vicomtesse de Cazes* is the best yellow of the lot, and *Pactolus*, or *Le Pactole*, is the second-best yellow; both are strong enough for beds, and the best bedders of the whole race. *Eliza Sauvage* is a splendid Rose, but it is too tender for a bedder; under a south wall, in a dry bright summer, it is a tolerable yellow, but in a wet cold season it has no colour at all. *Bougere* is the hardiest of them all, and as good as any against a wall. On a dry sultry morning, it is as sweet as a fresh opened tea-caddy, but it must have a wall to support its immense blooms; the colour I cannot tell, and I never yet saw it rightly described in any book or catalogue; pale rosy bronze they call it, but, like the countryman, they might as well say that its huge blossoms were as big as a piece of chalk.

Adam, a beautiful blush; *Comte de Paris*, a light blush; *Madame Lacharme*, in the way of the Malmaison Rose; *Moire*, a very sweet yellowish sort; *Queen Victoria*, the same; and *Souvenir d'un Ami*, a light rose colour, are as good as one could wish, and the most likely to do well out of doors. Our list of them, then, will run thus:—*Adam*, *Bougere*, *Comte de Paris*, *Devoniensis*, *Eliza Sauvage*, *Le Pactole*, or *Pactolus*, *Madame Lacharme*, *Moire*, *Niphetos*, *Smith's Yellow*, *Queen Victoria*, *Souvenir d'un Ami*, and *Vicomtesse de Cazes*. The last name was given wrong in some of the catalogues when it first came out, *las Cassus* for *de Cazes*.

I must here break the thread to notice a few things in the last double number. The *Double Yellow French Marigold*, mentioned by "R. L.," page 70, should have been called *African Marigold*; and there was one-third of the orange variety, in the same row, which added to the effect of the other; but when planted in large beds, as I often had them, the *Double Yellow* alone should be used. For a late autumn bed of *Matricaria*, the plants should be in the reserve ground till early in July, and be cut down about the end of May, before they come into flower,—they remove any time in July, and will soon begin to flower and last to the end of October. Of course an earlier bed may also be had in the usual way. *Senecio alba* I mentioned and condemned long since in THE COTTAGE GARDENER; it is a French white. All the old plants of *Eurothera prostrata* should be kept and divided next April into small pieces; it improved much after "R. L." saw it with me; and it is to be the *yellow ribbon* next year, in the same place, without any fresh soil; the *ribbon* is about a foot wide; old plants and dry poor soil are the only means to establish its character. The suggestion about planting the *Heliotropes* in their pots, and the grey *Verbena* between, is excellent where the soil is damp or rich. I over-did that job, and some others, last year, by making the beds too rich, to get the things up quickly, in time for the Prince. "R. L.'s" receipt for striking the *Unique* Geranium is worth the price of a volume of THE COTTAGE GARDENER.

At the risk of getting a rap on the knuckles for taking up so much space, I must answer our worthy friend, "S. N. V.," page 70. I had lots of *Moor's Victory* in 1820-30-31, and again, from 1840, at Shrubland; it is very common about Ipswich. Mr. Jeffries and Mr. Salter have plenty of it on sale, but it is not worth a snuff as a flower-garden bedder, and that is a great pity, for with the exception of *Unique*, there is not a more marked Geranium grown; its fault is that the most of the flowers hang down out of sight; on rock-work, or on a greenhouse stage above the eye, are the only modes of making the best of it. Every writer on cross-breeding Geraniums has named *Moor's Victory* as the best to breed from, for bedders, but it will not breed at all—I tried it to the utmost. We have no bedder in the style of *Rouge et Noir* that is worth a penny, except *Rouge et Noir* itself. *Touchstone* is the nearest to it, and *Oliver*

Twist the next, but both of these have been shelved years ago. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

GAS TAR FOR ANTI-MOISTURE PURPOSES.—This has several times been alluded to in these pages, but I think it has not received the attention its importance demands and deserves. More than twelvemonths ago, I mentioned gas-tar as being useful for keeping even the walls of earthen-pits dry in wintery, or other wet weather, and yet some of our readers and friends, who think themselves privileged, on the score of acquaintance-ship, to dispense with the prohibitions of our good editor, are frequently complaining, that do what they will, that fellow, *damp*, is an almost invincible, because so sure, though stealthy, an enemy. I have frequently heard many speak in the following manner:—"East winds, and north winds, the most stormy of sleets, and the most severe of frosts, we can manage pretty well—thanks to a waterproofed covering, and plenty of non-conducting dry material beneath it; but what matters this, so long as, though we defend the top, the moisture finds easy access at the sides and ends, and especially at the fronts, where the thrown-off moisture falls from brick-pits, and turf-pits, and earth-pits, and pits of all kinds? It is true that something in the shape of a water-spout may be placed in front of the first of these, yet this is always getting filled, or stopped, or cracked, and shivered, by coming in contact with feet and knees, as well as forks, and every other conceivable implement; so that the moisture on the outside gets soaked into the inside, and a pestilential *damp*, in the many shapes and forms of what you call *fungi*, spreading with their hair-like processes from plant to plant, consigns our favourites, in muggy weather, notwithstanding all the air that can be given, as effectually, though less slowly, to their last resting-place in the rubbish-heap, as if we had carelessly left them exposed to a cloudless atmosphere, with frost verging to zero." I feel so much the force of such representations, and have suffered so much at times from similar causes, that if I had strenuously recommended temporary cold earth pits for protecting tender plants in winter and these cold pits placed on north borders, as some good folks have done, without mentioning any easy method by which dryness was to be secured, I should feel half-inclined, opposed though it be to my natural inclinations, to skulk into a corner, or go a mile round, to avoid the meeting with any angry disappointed enthusiast. Before saying any thing of this cheap come-at-able remedy, which I have no doubt will soon be more in demand by our clear-headed earnest friends, allow me, once for all, to state, that I use the word *enthusiast* above in no contracted view, but in an expansive, generous sense, implying the ardent desire, the concentration of purpose, and the inflexibility of resolution, combined with the *probable* and the *practical* in execution, without which *enthusiasm*, no man, whatever his natural talents, ever did much to advance a science or an art, or to promote the weal and progress of humanity.

As many things are more easily understood by seeing them done, instead of reading about them, I will, by way of example, mention a few circumstances in which I have found great advantage from the anti-moisture quality in tar. A number of years ago, when the flower-gardens and verandas were forming here, I found I had no pits, for winter vegetables, or for preserving bedding-plants, either in winter, or for turning them out before they were weakened by the heat of forcing-houses. So without more ado, several pits, consisting partly of turf, but chiefly of earth, were constructed, and so

well did they answer, that they might have remained until now, only that they stood in the way of some changes, so that to have them removed, I got the promise of a low brick-pit, to which I must own I had an eye all the time. Now I only wished this pit to be somewhere about two feet level above ground at the back, and from six to nine inches in front, but our bricklayer, like most worthies in the profession, though the ground had not been moved for years unknown, fearful that the mighty wall would tumble down without a sound foundation, insisted on getting down to the solid clay, some good eighteen inches beneath the surface; and to this, looking beyond my small plants of the present, I freely consented, thinking that I might want some day to get as deep or deeper than the foundations, which has long since been done. From the labour, ever and anon, going on at this pit, summer and winter, I had made up my mind to do away with a spout and therefore, by means of clay and earth, and a little gravel over all, a sloping surface was made from a couple of inches beneath the wall plate, imagining that this sloping hard surface, in fact, would throw off all the moisture that fell. Little damage was done so long as the floor inside the pit was rather higher than the external level, but as the pit inside was deepened, the water from the surrounding ground found its way into the pit, and in regular *spates*, it sometimes stood to the depth of several inches. In this dilemma, having a little gas-tar by me, I had the surface-soil, gravel &c. outside, made as smooth as possible, and over this the tar was poured, and then spread with the back of a trowel, somewhat less than the sixteenth-of-an-inch thick, though where easily got, I would prefer it thicker than that. On this smoothed surface of thin tar, some fine gravel was spread to the thickness of from a quarter to half-an-inch, and this being beaten and rolled firmly, though it has now been done between three and four years and only extended a yard in width from the pit, no water has entered, and the place would carry the weight of a loaded waggon without shrinking. If it is so desirable to keep even the bottom of a pit dry in winter, then the same mode would alike prevent water rising, and do away with all danger from worms, as many years must elapse before they would be persuaded to bore it. No farther preparation is necessary, than forming and then smoothing, the surface of the soil, and covering thinly with the tar, thick if you like, but then it would require all the more tar, more stuff to blend with it, and more lime thoroughly to consolidate. Anything, such as ashes, would do for the inside of a pit, but for waterproofing outside, a little fine bright gravel is best, as this conceals the colour of the tar. I have done little with it inside, for two reasons: First, it would not be safe to put plants in it, shut up, until the smell had gone; and, secondly, if watering was done at all carelessly in winter, every drop that fell would be retained, unless the floor sloped greatly, and there was an open drain to convey all away.

More than twelvemonths ago, the mode of heating some pits was changed from deep dung-linings, to hot water. The linings were filled up, and, as from the incessant work going on at their front, I resolved to dispense with *spouts*, a similar plan was resorted to; though the wall-plates extended a little farther over the wall than usual, so that the drip did not fall on the wall; and, here, although the drip falls fully two feet, yet, except in a very few places, it has made no impression on the waterproofed thin covering of tar and gravel.

I have found that the soil here, not only *sucks*, but *holds* water like a sponge, and do what I would, short of going to the expense of a regular waterproofed moveable covering, I never could get forcing borders, &c., dry enough in winter and spring. I tried this thin covering

of tar on two borders; from one I removed it in the beginning of summer, taking it and a little earth away, and the other I allowed to remain—in both cases I have reason to be satisfied. The subjects of draining and preventing water entering by the surface, both require master minds to elucidate, and we need much information on these subjects yet.

Though scarce in quantity, I have just daubed over some earth pits, sixty yards in length, the backs ranging from eighteen inches to two feet in height; I have only done the outside, covering the tar with road-drift, but that keeps them well dry; though the frost must not touch them until quite hard. There is a sloping surface from the front, to prevent water from sashes, or straw covers, &c., soaking in there. If these turn out as others have done, they might be whitewashed in summer, or take any colour you liked best. Probably in a year or two, from being so thin, they may want doing again, but it will cost very little of either time or expense. From one barrel, more than 130 square yards of ground were covered, besides the earth-pits alluded to, and some little places besides, so that it *must* have been thin. Though cold and thickish, it spreads beautifully with a trowel; when a brush is used, it should be heated a little. It is a wasteful plan to knock the head out of a barrel, as it is no pleasant thing to replace it; a hole made near the bottom, on the side, for a stout peg vent, and an air vent above, will cause it to run freely; and if the weather is cold, or when it gets thicker from being near the bottom, setting the barrel in the middle of a hot dung-bed, will cause it to come out almost as quickly as *some* beer. In many places it sells for five shillings a barrel; round here, I believe, the average is two-pence a gallon—cheap enough where it can be got conveniently.

I thought I knew something of making *walks* cheaply and substantially. If Mr. Beaton did nothing else by the description of his superior and simple mode, he gave a sad shake to my self-esteem, for which, as in duty bound, I thank him. Let not however, even that hero repose upon his laurels, for though I have not made a real *bond fide* walk with tar, yet I see it is now being agitated in the pages of a contemporary; and from the success that has attended my operations on a small scale by the sides of pits, &c., exposed to twenty times more tear and wear than walks commonly meet with, while not a single weed has yet presented itself, I feel confident that in many, especially in small street and other gardens, the employment of tar will be a great benefit, both as regards comfort and expense. Though, perhaps, somewhat intruding, I may state for the benefit especially of those with small places, and who are sadly bothered with weeds, &c., that if there is an existing walk, it merely requires solidifying and placing the tar over it; if one is to be made, take out no deep gully hole, cut out the sides, and place at least part of that in the middle, just to round it a little, make all firm by rolling, pat it so as to give it a smooth surface by spade or otherwise, then when a little dry, place on the tar at the *least* one-eighth of an inch deep, throw on this some roughish material, beat or roll firmly down, then, when a little dryer, a layer of fine coloured gravel or even of rough hard sand, firm and roll again, but allow no walking until consolidated, and you will have a walk as firm as asphalt pavement, and better in colour; but the tar must touch nothing you wish to live.

R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC STOVE PLANTS.

SOLANUM.—A tribe of plants scattered over the greater part of the known world. In this genus, is that most useful of all vegetables—the potato. Our cottage readers

will, no doubt, be glad to know the name that botanists have given to this most useful and important esculent. It is called *Solanum tuberosum*; but it is not our intention to enter into the history and culture of that useful plant. Our business is with ornamental plants only; not that the tuberous-rooted *Solanum* is not a beautiful plant, for a field of potatoes, when in full flower, is very beautiful, but it is too common even for our friend Mr. Beaton to make a flower-bed of. This genus does not abound in plants worthy of cultivation for ornamental purposes; there are, however, a few. The *S. jasminoides* is a beautiful climber for the greenhouse, producing numerous heads of elegant white flowers. The *S. crispum* is also a handsome plant, nearly hardy, suitable to plant against walls or palings, and which, by its rapid growth, quickly hides any unsightly object. The plant, however, that we have to recommend on this occasion, is a native of South America, and, consequently, requires the protection of the stove. It is known by the name of

SOLANUM AMAZONIUM, and produces flowers, of the richest purple colour, about the size of a half-crown, from the axils of the leaves, on stems that bear them in succession for a long period, from May to July. The leaves are of a medium size, and hoary, having much the appearance of the leaves of the common sage. It is of a half-shrubby habit, and when well grown is really a handsome object. It may be had for the moderate price of 2s. 6d.

Culture: Soil.—The compost we have found to answer satisfactorily for this charming plant, is made of turfy peat, loam, and leaf-mould, in equal parts, with a due addition of river sand. This should be well mixed together, but not sifted. Indeed, most plants thrive better in soil used moderately rough, than when sifted. Excepting for very small plants, sifting the compost is not only useless, but positively injurious. When used in a rough state, it allows both air and water to penetrate into every part of the soil in the pot, and thus reach to every rootlet; but if the soil be sifted even moderately fine, it soon becomes a hard mass, impenetrable to the roots, the air, and to moisture; the latter escaping down the sides of the pots, leaving the centre of the ball quite dry and hard; and if, in order to wet it, the pot is placed overhead into water, till the soil becomes thoroughly saturated, the evil is not remedied, for it then retains the water so long that it becomes sour, and unfit to feed the plant, which then turns yellow and diseased. Beware, then, of sifting composts, and using the fine soil, excepting for exceedingly small young plants.

Propagation: by Cuttings.—The leaves of this plant being covered with down, renders it very liable to damp off in the cutting-pot; therefore, in making the cuttings, reduce the number of leaves, and use only the young tops. The best season for this work is in early spring, about the middle of March. Prepare the cutting-pot in the usual way, by draining and well-filling the pot to within an inch of the top with the compost, and the remaining inch with pure white sand. The size of the pot most convenient is about four inches. Water the sand gently to settle it and make it firm; put the cuttings in round the edge of the pot, and place them under a hand-glass, in heat; bell-glasses are too close for this woolly-leaved plant. As soon as they are rooted, pot them off directly; replace them for a week or two under a hand-glass, and then gradually inure them to bear full exposure to the air and light of the sun.

Summer Culture.—Like most summer-flowering stove plants, this species requires potting very early in the year. It does not thrive well in large pots, but flowers better, and keeps in better health, if under-potted. It is rather of a straggling habit, and, therefore, requires management to make it bushy. Let it be, when young,

frequently stopped, and tie out the shoots with short sticks and mat, bringing them well down to allow the central new shoot space to grow. Water moderately, because, if the soil is kept constantly saturated, the ends of the roots perish, and the plants become unhealthy. The syringe must be used very rarely.

Winter Culture.—When the blooming season is over, out the plants down, but leave a few leaves on each, to draw up the sap, or there will be danger of the whole dying. Keep them rather dry, and moderately cool. Heat in summer, 70° by day, and 60° by night. In winter, 55° by day, and 50° by night. T. APPELBY.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS.

THE most remarkable *Fuchsia* of the season is *Banks's Diadem*. We have already noticed it as reflexing in an extreme degree, fully as much as a Martagen Lily. The sepals are too narrow for perfection, and it is an instance of reflexing too much; but it must be grown by everybody who means to keep up the quality of his collection; and it shows that our "extravagant notions," as they were called, of the sepals reflexing back to form a globe above the corolla, have actually been surpassed by the reality. It may well be conceived that the *fuchsia*, under such circumstances, assumes a new character. The plant of *Diadem* well grown will be beautiful.

Every florist who indulges in the cultivation of the tulip, will recollect our instructions for a new mode of arranging the bed by having the same flowers on each side of the middle row, that is, duplicating the sorts. The floricultural editor of a garden newspaper has republished the idea as if it were a new discovery of his own, although we first published it nearly twenty years ago. In like manner he has republished our hints for the arrangement of a dahlia stand, merely changing the words, and taking credit for the ideas.

Fuchsia growers, in our opinion, are behind all other exhibitors in taste. They exhibit worthless varieties, grown however they may be; and rarely have we found more than two or three in a collection that had any distinct character. Now we recommend all who intend growing, to get all they have not already procured of the following varieties:—*Ne plus ultra*, *Fountain*, *Roseola*, *Coralina*, *One in the Ring*, *Elizabeth*, *Hebe*, *Standard* (Mayer's), *Champion*, *Lady Dartmouth*, *Sidonia*, *Banks's Leader*, *Banks's Diadem*, *Pince's Princeps*, *Nil Desperandum*, *Psyche*, *Clapton Hero*, *Prince Arthur*, *Scarlatina reflexa*, *Splendida*, *Voltigeur*, *Bride*, *Dr. Gross*, and *Great Western*. If they show any of these well-grown, they will redeem *fuchsia*-showing, for it has been desperately bad.

Hollyhocks are in the ascendant, and those who are going to begin may calculate safely on good flowers if they buy the following, or any part, beginning, however, as we begin:—*Cornet*, *Elegans*, *Magnum bonum*, *Mr. C. Baron*, *Walden Gem*, *Enchantress*, *Obscura*, *Rosy Queen*, *Rosea*, *Grandiflora*, *Spectabilis*, *Meteor*, *Sulphurea perfecta*, *Saffrant*, *Pillar of Beauty*, *King of Roses*, *Joan of Arc*, and *Triumphant*. There are other good ones; but these cannot mislead the grower.

A new class of *Pansies* has been advertised by Salter, of Hammersmith, and singular enough they are. We need not look for first-rate shapes among them, but there is a most extraordinary combination of colour in indefinite stripes, and they will doubtless lead to as complete a fancy class as we have in Dahlias, which, when we begun with them, were most outrageous as to form; whereas we now have them approaching the proper shape. Keyne's *Triumphant* is the finest formed of the whole class, and when it comes self it might be shown as a self, without hurting the stand.

FLORISTS' FLOWERS CULTURE.

THE RANUNCULUS (*Continued from page 88*)—*Taking up and storing.*—The right time to take up the roots of the Ranunculus is as soon as the leaves are withered. When the bloom is quite over, cut down all the flower-stems, and remove the shades entirely, day and night. If the weather, as is generally the case at that time of the year, be hot and dry, the leaves will soon decay, after the flower-stems are removed. Some seasons, however, happen now and then to be very wet; in such case, it would be desirable and prudent to replace the canvass shades, so as to protect the roots from too much wet, and hasten their maturity. In either case, the taking up the roots must not be delayed more than a week, or, at the farthest a fortnight, after the foliage has become dry and withered. If delayed longer, and rain should fall, the warmth left in the soil and the rest they have had (though so short), will cause them to make new roots, and that, as every grower is aware, will weaken them much and so cause them to bloom less the succeeding season. Some might suppose that they would take no harm, when such a case occurs, if they were left in the ground through the winter, but this would be a sad mistake indeed; *it is absolutely necessary to take up the tubers of the Ranunculus every summer, immediately their leaves decay*, that is, if they are considered by the grower worth preserving at all in perfection. Having got them into a fit state for taking up, fix upon a fine dry day; commence with No. 1, and put all that variety into a vessel of some kind or other,—a garden-pot feeder or saucer, will be very suitable, or a sheet of paper of a size proportionate to the number of tubers, would answer very well; dress off the dead leaves, and shake off any soil that may adhere to them; place the number upon the lot, and remove them off the bed *entirely*, before a single root of the No. 2 is disturbed. This care will be found well bestowed in keeping the varieties quite distinct and separate from each other. It prevents any possibility of mistake, and has the effect,—no bad thing either,—of giving a perfect assurance to the mind of the owner, that all his Ranunculuses are true to their names. Proceed similarly with No. 2, and so on, till the whole are taken up. Let them remain in the open air, if it is fair weather, the whole of the day, and at night, remove them into some place where the rain or dew cannot reach them. Let them remain open to the air until they are thoroughly dried, then either pack them up in paper, or, which is better, have a nest of drawers, with corresponding numbers for each variety separately, and keep them in a dry, airy room, not much exposed to the sun. Here they may remain till the season of planting returns, requiring only to be looked over occasionally, and let all decaying roots, or other injurious matter, be removed instantly. Should a mouldiness appear upon the tubers, you may be certain either that the room is too damp, or that they have been put away before they were properly dried. In either case the remedy is obvious. Remove them into a more airy room, if the first be the fault; or, if the second, expose the roots to the full sun for a few days, till they are perfectly dry, and then replace them in their winter quarters till they are required to be planted in due season.

Lastly, *Propagation by division*, or, rather, by *offsets*. This is the way to increase the existing varieties. The best time to divide or separate the offsets from the old tubers, is when they have been taken up a day or two, and have become soft and flabby, and before they have attained that firm, dry state, fit to be put away for the season of rest. They are then most easily separated, because the tubers are tough, and, consequently, not so liable to be broken or damaged as they would be when highly dried. It happens frequently, with some varieties, that the old tuber forms two, three, and sometimes four

tubers, equal in size, and capable of flowering the next season; when that is the case, they may be, of course, placed among the flowering bulbs. If they are small, too small to bloom, it would be advisable to plant them in a bed by themselves; a bed made of the same materials as the blooming one, care being taken also, that the corresponding numbers are placed to each variety. This bed of small offsets will not require to be shaded so much as the bed of blooming tubers. Water must be applied liberally to enable the plants to grow freely, and so increase the tubers up to the blooming point. Take them up at the proper time, when the leaves are decayed, and manage them exactly like the blooming tubers above described. If any of them have attained to a size likely to bloom, promote them to that class at once. The other method of increase by seed must form our next paper on *Ranunculus* culture.

T. APPELEY.

THE KITCHEN-GARDEN.

MUSHROOMS. MAKING OF SPAWN.—Amongst the many uncertain crops a gardener has to deal with, that of Mushrooms stands pre-eminent for its caprice, as it not unfrequently happens that, with the best of materials, conveniences, and attention, the crop is a failure, while, on the other hand, we have seen a bed roughly made up, as carelessly attended to afterwards, and yet a tolerable fair lot of Mushrooms were produced; still, with all these peculiarities, their success or failure, is, to a certain extent, owing to their treatment in some part of their progress, and it is with a view of directing the amateur's attention to a few leading principles in their culture, that we devote a considerable part of the present Calendar to this subject.

In the first place, we shall begin with the *making or preparing of spawn*, the quality of which is of the utmost importance to the crop; in fact, we think that failure arises more often from the spawn being dead or stale, than from any other cause, and though we are told it will keep for years, we usually make a little every year, and then are sure to have it fresh. Our plan is this:—Early in August we collect a few barrow-loads of horse-droppings, from a stable where the horses have been feeding on hard food, as hay, corn, &c., and for this purpose it ought to be fresh, and not previously heated. We also get about as much cow-dung, and we have added sheeps'-dung, when it could be had. These latter we obtain from the field, by sending a boy with a barrow to collect a quantity. Three or four barrow-loads of each kind is amply sufficient for most places. Having collected them, we spread them out on some smooth, open place, and beat, chop, and mix them industriously for some time, adding a little sound loam to the mass, perhaps one-fourth; we never add water, as the cow-dung is generally soft enough to make up the mass. After treading, beating, and chopping well, we leave it spread out rather thinly for a day, then give it another kneading, and if it be so that it can be cut up and handled, we beat it out evenly, about three or four inches thick, and cut it up into pieces, about the size of bricks, these we carry and lay on dry ground singly, to dry a little, and if the weather be fine, they will want turning the next day or so, care must also be taken that no rain falls on them at any period of their progress. After they have dried so as to contain about as much, and no more moisture, than the ground does under ordinary circumstances, they are fit to be carried away to some place where they can be kept dry, and rather warm. We usually pile ours in a corner of a shed, having first obtained some old spawn, very often from an old bed; this we break rather small, and scatter a very little on the ground, then we put a layer of the new-prepared pieces, and over and also between them, we scatter a little of the crumbly old spawn,

and then another layer of pieces, and so on, until the whole is piled up, after which we cover it up with litter, and examine it in a few days to see if it be likely to overheat. A large heap sometimes does so, but a small one rarely. Should it be likely to overheat, spread it out wider. Little attention will be wanted for a fortnight or three weeks, when it may be examined, and very likely the spawn has begun to run into the lumps, which can easily be detected by breaking a piece, as a white moulding on the outside is not a sufficient test; the smell will also betoken its advance, and as soon as you see any little Mushrooms about the size of a Pea, showing themselves, remove the pieces they are on, and all others that look equally interlaced with the fibrous frame-work of this singular production, carrying away those pieces now ready to some dry, airy place, and those not sufficiently spawned may be returned to their places, and covered up as before. Sometimes it is six weeks or more before it is perfectly accomplished, and sometimes it is well done in a fortnight. We often have a bed prepared ready to spawn by the time the pieces are ready, and we at once transfer a part of the spawn to it, generally using all the broken, small, and refuse pieces at the bottom of the heap; they are all equally good as the best lumps, only not so portable. After our store lumps have become pretty dry, we put them away in a loft, taking care that no frost or damp gets to it,—we use it as we want it, and we need hardly add, that we do so with a no-sparing hand. But our way of making beds, &c., we must defer noticing until another week.

DRIED HERBS.—Although the very recommendable way of drying, rubbing-down, and bottling herbs of various kinds for use, has been in practice for many years, yet there are places where the gardener is expected to preserve things of that sort in the bunch. When so, it will be necessary now to examine them pretty often, and unless they are in the precincts of, or under the influence of fire-heat in some shape or other, they are sure to imbibe moisture from the atmosphere at this damp period, and mould, loss of odour, &c., is sure to follow. If some clean, dry place, cannot be obtained for them, let them be tied in their paper-bags and hung up near fires of some kind. A little dust is easily shaken off the bags, but is not so easily removed from a bunch of *Basil*, *Mint*, or *Marjorum*, but even those bags will require examining at times. *Camomile flowers*, if properly dried, ought to be put tightly in a jar, and tied down, and set in a dry place. If hung up loosely, much of that aroma, so essential to their quality, is lost, but in all cases, where practicable, we think the plan of fire-drying herbs, and immediately rubbing out and bottling, is the most orderly, cleanly, and neatest way; and the amateur, whose consumption of such things may not be extensive, will find it most convenient, and we advise our gardening friends to try their persuasive powers on the kitchen authorities, to have the same done there at the most fitting time.

PEAS.—This all-important vegetable, which is every one's favourite, ought now to be sown for the first crop, but the proper time for so doing has been the subject of frequent discussion. Some cultivators, sowing their first crop by the beginning of November, have proudly pointed to their earliness after a mild winter, while the next season, by sowing at the same time, they perished, or nearly so, early in spring. The facts of the case lie in a nut-shell; the young plant is extremely hardy, but at a more advanced size it becomes less so. Now, as neither Messrs. Moore, Murphy, nor Zadkiel, can tell us exactly what sort of a winter we are to have, we must make our arrangements to meet one of ordinary severity. We have, for some years, been in the habit of sowing our first Peas on some dry day, between the 10th and 20th of November; and we have not seen any reason to depart from that rule. The kinds we have succeeded best with are *Warner's Early Emperor*, and the *Early Frame*. Either of these (if true) we confidently recommend, but we intend, at some future time, to mention the merits and failings of others we have tried. It is almost needless to say, that they ought to have a well-sheltered south border, as we suppose, in the previous arrangement of crops, this very important one was thought of. Rows of about four feet are sufficient for these Peas, as they do not grow high, and unless the ground be loose and dry, do not sow deep, rather raise the earth or other covering above the ordinary level. When we sow Peas we make a broad drill six or seven inches wide at bottom, and level, on this we sow the Peas, thicker, of course, now than in summer, cover very slightly with a little fine earth, over that a little soot, and finally coal-ashes, one or two inches thick. The caustic properties of the soot is rather too much to be close to the seeds, though, when it is so, it renders them, to a certain extent, unpalatable to vermin. Coal-ashes are likewise a protection. Some people use chopped furze over their drills as a preventive to mice, and many other things have been adopted, with more or less success, but we advise the amateur to trap these little animals in their various haunts, rather than tempt them to his Peas to catch them; but more of this anon. After the Peas are sown, efface all footmarks on the ground, not with the rake, but with the spade, as neatness and order ought to reign here, as well as in the more ornamental part of the grounds.

SUNDRIES.—See back numbers as to *Sea-kale*, *Rhubarb*, and *Asparagus*. Take notice that no slug, or other vermin, molest the autumn-sown *Carrots*. Cut *Red Cabbage* for pickling, when wanted, and frequently look over *Wuloheren*, and other *Autumn Brocoli* that is coming into use. Cut all that is ready. Examine newly planted *Cauliflower* that the slug does not get at them, if so, dust with lime. Beds of *Sweet Herbs*, and other things, will now want clearing up for the winter, and such work progressed with, as the nature of the weather and other things render most advisable. J. R.

MISCELLANEOUS INFORMATION.

BEES.—HOW TO TREAT A GLASS WITH BROOD IN IT.

I HAVE a few remarks to make, by way of supplement to my last letter, which, for want of space, I was then obliged to omit. And, first, as to what became of the *glasses* (see page 69, note), which, previous to the formation of the artificial stock then spoken of, had been occupied by the bees of my strong stock. In both there was a good deal of beautiful new comb, but the queen had laid several hundred drone eggs in each glass. The way in which I treated this comb, will be interesting to many of your readers, who have laboured under the same disappointment as myself. I must suppose that the bee-owner watches the condition of his hives frequently, if not daily. In this case,

he will soon detect, after a little experience, whether the queen has laid in the glasses or not; but those who have no intimate acquaintance with the habits of bees, will find the following a safe canon or axiom in bee economics, viz., that when bees begin to cluster and work comb in a glass, while it does not appear that much, if any, honey is being stored simultaneously, it may be inferred pretty surely that this comb-building is only going on in deference to the queen's breeding wants, and, in fact, that she has actually laid eggs in the glass. Under these circumstances, at the end of four or five (or perhaps six) days, I would advise the removal, with a view to an inspection, of the glass. Let

the bees be suffered to escape home, if necessary, and if there be found eggs or young grubs in the glass, let it be put aside in a cold place—the eggs and young larvae will in a few days have perished. The glass may then be returned to the same hive, or, if another glass has been substituted in its place (which were perhaps better), may be given to another stock, or be laid aside till wanted. In this way the development of brood (whether of workers or drones) in glasses, may be effectually prevented. It will in nowise hinder or delay the activity of the bees; and they will first cleanse out, and afterwards store beautiful honey in, the comb, when restored to them, which would otherwise have been spoiled. This was my case: not one of the eggs came to maturity, and my glass was filled with honey. This process may be adopted with perfect ease and great advantage as often as is necessary, only care must be taken to remove the glass in good time—that is, before the grubs have begun to be coiled up in the cells, which will be on or about the seventh day. It is generally in bad seasons, or when combs are worked in glasses in strong stocks, before any quantity of honey is collected in the fields, that brood is found in them. Let me further remark here, that this is one of the surest indications of the readiness of a stock for having an artificial swarm made out of it; for it may be taken for granted that, under these circumstances, there are no vacant cells (that is, unoccupied by honey or brood) in the stock; and it is always advisable to wait, before forcing a swarm, till most of the cells are actually *ceiled over*.

Another thing, too, is worthy of remark. Those amateur apirians who, with me, think that a systematic and periodical destruction of the old queens is desirable, will see what facility is afforded in the working of glasses for effecting this object. As I have before said, scarcely a week has passed, both this and last summer, without my having seen the queen of every one of my box-colonies, which happened to have a glass over it, perambulating that glass; and I have often seen her, in May, June, or July, many times a day, in the same glass. What can be easier, therefore, than to thrust a slide beneath the glass, remove it, catch and destroy her. The bees will gradually leave the glass one by one, and fly home; but, if not watched, the queen will go too. The best way, therefore, perhaps, is to fumigate the glass, and so catch her—that is, if the glass is *not honey-full*, as in this case it might be spoiled for use. In this way I hope next summer to get rid of the old queen of that stock, with whose history I have so often troubled the readers of THE COTTAGE GARDENER. She has been in my possession since August, 1849, and may, for aught I know, be now going on for four years old. But for her admirable qualities as a breeder, I should have destroyed her this last summer.

In withdrawing a queen from a hive in this clandestine manner, it might be long before the bees perceived her loss, and, perhaps, not till it was too late to remedy the evil. Therefore, I would recommend the bees to be violently disturbed, by a slight fumigation or drumming, at the same time with the queen's removal. This would draw their attention to their loss.

Again, does not this suggest a way of preventing the escape of swarms? Every young queen may be caught, and have her wings mutilated in such a manner, that, in the event of a swarm rising, unexpectedly, it would, with the queen, fall to the ground, and be easily found and hived? If the queen became lost to the bees (which, under such circumstances, is not seldom the case), they would all return home, and in this way a youthful sovereignty would be perpetually kept up, without loss or trouble.—A COUNTRY CURATE.

BIRDS.

LIVING in a retired part of the country, about two miles from a town, I have many opportunities for noticing the habits of birds, both in their wild, and in their half-domesticated state, and the result of these observations convinces me that they are an essential link in the divine economy for the comfort and happiness of man. Without their check, the rapid increase of the insect tribes would render almost fruitless the labours of the agriculturist and the gardener. Wherever and whenever birds most abound, we may be sure that it is in obedience to a law of nature; and the

operation of this law is beautifully and benevolently exemplified by the arrival and departure in the spring and autumn of the insectivorous birds, to render their services during the summer, when their assistance is most needed; that class only remaining for the winter which are adapted to the rigour of the season and our wants. I never suffer a bird to be molested, and am repaid for my protection by a garden comparatively free from the ravages of those insects of which so many complain. For six years a pair of Martens have occupied the same nest upon a rafter in my stable; they rear two broods of four each every season, and the quantity of insects captured for their young is incredible. As we are upon familiar terms, I frequently stand to watch their arrival with food, which is repeated for hours, at intervals of two or three minutes. Last summer the pan-tile under which the nest was placed, became so hot from the sun, that the young ones were scorched out, and not being fully fledged, fell to the ground. The distress of the old birds in this dilemma was great. I tied a basket to the rafter, and put the little ones into it, but they soon appeared in a row upon the edge, and in this position were fed and tended by their parents until able to take their flight.

The *Flycatcher* is another of my favourites, and very familiar. A pair of these for the last two years, have built their nest over my kitchen window, they also rear two broods, and are indefatigable in the destruction of insects. Their favourite position during the day is the tops of the Dahlia stakes. As in the case of the Martens, the sun at times was too hot for the young ones in the nest; upon these occasions the mother would sit for hours with her wings and tail expanded, so as to form a screen for their protection. With such examples of parental tenderness, need man to doubt of God's particular providence over him. "He shall cover thee with his feathers, and under his wings shalt thou trust."

S. P., RUSHMORE.

SIMPLE AND PERMANENT MODE OF LABELLING PLANTS.

WHERE accuracy and intelligence are aimed at, I think it requisite that all plants should be labelled, for it is impossible for the memory to retain the names of the numerous tenants of our gardens. The usual method of naming plants is with wooden labels, but as they require renewing so often, on account of their decaying at the surface of the mould, I have adopted the following as more permanent. I have labels of zinc because they are the neatest and most durable of any. There have been many inks invented for writing on this metal, but I have never seen any that did not soon get effaced, or is not troublesome to write with. Now the system I adopt is permanent if done in the following manner:—Warm the label, then apply a thin coat of bees-wax to the side on which you intend to write, and when the wax is cold, write with a hard pencil; in fact, anything hard and pointed will do, and then apply two or three drops of an equal mixture of Spirits of Salts (Muriatic Acid) and Spirits of Nitre (Nitric Acid) by means of a feather; let it remain about five minutes and the letters will sufficiently corrode in the zinc to be legible. For annuals and such plants as are of short duration, a wooden label is as well as any, but for Roses, and other shrubs, and fruit trees, one of zinc is the best. If used as I have described, it will not decay, nor be effaced by the weather. For plants in pots it is also superior, on account of its neatness and durability.

F. C.

CRICKETS—CELERY EARTHING.

HAVING seen various receipts recommended in THE COTTAGE GARDENER for the destruction of crickets, I also send you the following receipt, which has been very successfully used by the lady whom I have the honour to serve. She had some bread cut in thin slices, well buttered, and dredged with arsenic, and cut in small pieces, which before going to bed were placed in the ash-hole under the grate, next morning all the butter and arsenic were gone, but the bread was left; in about a week after more crickets were observed, when supper was again set out for them, which they had evidently partaken of with a good relish, and since then not a cricket has been seen in her kitchens.

I have also seen coal ashes recommended by J. R., the

writer of the Kitchen-garden department, for earthing late crops of celery in heavy soils, which I can say, from experience, is an excellent plan. I have generally grown as good celery, and, I believe, sometimes better, than my neighbours, but could seldom keep any of it after Christmas. I have often been very much vexed when I have had two or three yards of a row of my once fine celery to dig up before I could get any fit to use; I tried river sand with very little benefit, but since I have used coal ashes I can keep my celery until late in the spring; before earthing up I remove all suckers, and clear away all tree leaves that the wind may have blown amongst them; then tie each plant gently together with a little soft bast; I then add a good layer of moderately-dry coal-ashes close to the celery, and back up with soil, taking care not to allow the soil to touch the celery. I would earnestly advise any of the readers of THE COTTAGE GARDENER, who may have lost their celery through the ravages of insects, or rottenness, to try the above plan, as it will preserve the celery, and also improve the ground.

J. N., Boston, York.

CHURNS.

Your readers can have nothing so simple as the common barrel-churn in use in large dairies, made as large or as small as they please. There was a neat and likely little churn for a small dairy in the Exhibition. It was simply a fly-wheel with sails working in a tub or box, something like the old smoke-jack, but, of course, made of wood. It was forced round by two iron barrels, one horizontal, the other perpendicular, and turned by a winch.

A WORCESTERSHIRE MAN.

TO CORRESPONDENTS.

EVERGREEN TREES FOR CLAY SOIL (S. W. L.).—There is not a very fast-growing tree, among all our evergreens, that will suit your clay soil. A row of *Spruce Firs* will answer your purpose better than any other tree, as you can plant them so thick as to form an evergreen hedge in a few years. Plant them only two feet apart, and let the branches run into each other.

NAMES OF PLANTS, &c. (Constant Reader).—Of your Sweet-scented Geraniums, 1 is *Prince of Orange*. 2, *Rose-scented*, or *Graveolens*. 3, one of the endless varieties of the Citron-scented, and a very good one. 4, *Fair Helen*. This and No. 1 are the hardest of the race. 5, a variety of *Radula*, without any particular name; and No. 6, *Oak-leaved*, but there are many varieties of this, which cannot be determined without a flower. The dark *Verbena* is *Emma*; and the other is one of the many bluish-grey ones; *Venosa* is a very different thing. Your "little red flower" is *Coccinea*, the oldest of all the *Achimenes*. The *Cuphea* is striped as you propose, and the tulips will not suffer much; but do not *gloss*. None of the Scarlet Geraniums will give the same effect as the old variegated Scarlet with *Verbena venosa*. Your kidney-shaped bed will do plant them thick. The *Geant des Batailles*, and the *Malmaison* roses, may or may not be on their own roots in a bed; it is only when roses are trained down, that it becomes absolutely necessary to have them on their own roots. The White is the same as the *Sweet Alyssum*. We cannot say why the nurserymen do not grow such and such plants.

FLOWER-BEDS (T. T. T.).—Bed 9, a scarlet, in the middle of eight other beds in a circle, is as badly planted, or coloured, as you could make it. When you plant again, let 9 be a white, or some dull colour; and if you cannot get the colours to match in the other beds, let the centre one be of tall plants that will hide the defect in part; 3, 4, and 7 are good bedding plants, if you had good varieties, and the fault must be in the soil; 2, *Alonsoa* is not much, but *Saponaria calabrica* in its place next year. It is best to empty the *hot-water pipes* for the greenhouse when the fires are given over in the spring, and take fresh rain-water in during the autumn; and to keep the pipes clean, put in a piece of Sal-ammoniac as big as a hazel-nut once every winter.

FLOWER-GARDEN (J. K. G.).—Your "funny plan" looks very well indeed on paper: we would not alter one inch of it. A few half-standard perpetual roses on the grass slopes would be enough to make your present arrangement very complete, on the supposition that the beds are rightly filled. How do your walks stand on that slope? The *Ageratum* will not stand frost. Any nurseryman can supply it cheap, and it is very easy to root from cuttings.

LANTANA CROCEA (E. B.).—It is an excellent bedder in the autumn, as you have just proved by having it in fine bloom on the 30th of October. No wonder you should like to preserve it for another trial; but the right way is to make cuttings of it every year early in August, and to keep them in a greenhouse exactly as you would *Salvia fulgens*. Before you see this the frost will have killed your plants down to the ground. Perhaps you may yet save some by cutting them close down, and saving the root-stocks in sand under a stage in a greenhouse; but after this always keep a stock from cuttings.

VERBENAS (C.).—Yes; frost has no respect for persons or plants; but your old Verbenas, except the low creeping varieties, will not yield to the first or second frost. It is not desirable that the Verbenas should escape. *Pentstemon* in damp, rich soil are often killed. It is safe to protect a

few plants; or, better still, to make a lot of cuttings of them every August. Young plants of them, say two or three years old, flower best.

LARGE FLOWER-BED (Philanthes).—We approve much of your determination to remove the American plants, and fill the whole bed with low-flowering plants, but we cannot attempt to choose the kinds of plants of any one's flower-bed. Your object is not to attract the attention of strangers from the plant-houses, by a great display in this large bed in front, therefore a mixed bed will suit you best, and in a mixed bed you need not fear if one-third of the plants are as gay as they can be, two-thirds neutrals will keep the high colours in subjection, so to speak.

ROSES AGAINST IVYED-WALL (Ibid.).—Against a north wall eight-and-a-half-feet high, and covered with ivy, you wish to plant a row of Roses to train up amongst the ivy—an excellent, if not the very best plan. Most of the pillar-roses will suit you, but the hardest and strongest Hybrid Perpetuals, and Hybrid Bourbons would be better—say *Madame Laffay*, *Mrs. Elliott*, *Baron Prevost*, *La Reine*, and between these, the following Bourbons, *Bouquet de Flore*, *Amenaide*, *Madame Auble*, *Splendens*, *Gloire de Rosemano*, and the *Tyrian Purple Noisette (Poupre de Tyre)* of the catalogues.

ROUP IN FOWLS—COCHIN-CHINA FOWLS (A Poultry Keeper).—"Your fowls are suffering from roup, which is, I believe, only another name for severe cold. Can your hen-yards be sheltered from the east and north, if they are not so already? I give a pill of Barbadoes aloes, and keep the sick fowls warm, apart from their companions, and this treatment has sometimes proved successful. I have never seen Malay fowls with feathered legs; they are very different from the Cochin-China, being taller, quite different in their carriage, with more tail, and a rose comb. Cochin-China fowls should lay dark-coloured eggs, but after the fowls have laid a long time, or are out of health, they will sometimes become paler."—(Anster Bona.)

PILLAR ROSES TO MATCH (T. O. P.).—*Aoidalle* is not a pillar rose at all. *Queen of the Prairies* will match and contrast with *Blairii*, but they both require a wall in a cold situation. *Beauty of Billiard* and *Chenedole* would match well with *Brennus*; but neither of them, or any of the Hybrid Chinas or Bourbons, will contrast or agree at all with *Laura Devoust*, which is a climber intermediate between *Noisettes* and *Multi-floras*. If you have it true, the best match or contrast for it is either *Felemburg* or *Poupre de Tyre* (Tyrian Purple), the only crimson *Noisettes* we have.

PROTECTING GERANIUMS, &c. (E. G.).—You had better put some of the plants from the greenhouse under the cucumber-frame, to make room for the *Petunias* and *Verbenas*, which you cannot save in the frame if we have a long hard winter. The way to protect it from the frost is to put a mat or two over the glass, and then a good covering of straw in very hard weather; the mat is to keep the glass clean.

LILIUM VENUSTUM (Ibid.).—This is the second time we have been asked about this plant, but there is no Lily by that name, as far as we are aware. We should much like to know what it is.

DOUBLE SCARLET 10-WEEK-STOCKS (S.).—It is, indeed, surprising how well this stock is grown for the London windows. But the culture is like writing; you may look at a good writer for years without being able to catch his style, and you may see the whole process of rearing this stock over and over again without being able to make a hand of it yourself. The seeds are sown on a slight hotbed in August, and as soon as the seedlings are fit to handle, they are pricked out into other beds, and carried over the winter something like cauliflower plants. There are regular stock growers, from whom the large nurserymen buy them in the spring.

BUDDEIA AND ALLSPICE (F. R. C.).—Yes, this is a very good time to remove them both. The Allspice (*Calycanthus floridus*) will carry a large ball, if you like, but that is not very necessary; and you may get a good many young ones from it, if it is very bushy down to the soil. The *Buddia* you must be more careful about, as the roots run down a long way, and are not furnished with many fibres, unless the soil is very suitable for it.

TROPÆOLUM TUBEROSUM (Carig Cathol.).—The roots will be in good time;—we are much pleased that it has flowered so well with you. What a present to send to a friend in New Zealand, or Australia, or to Natal, or the hill districts in India! If sent like so many potatoes, the roots would reach in safety, even if they were five months on the way. The leaf is not that of the common pink Ivy-leaved Geranium, of which there is a variegated crumple-leaved sort, but that of the lilac trailing Ivy-leaf. Your plant, like the white Ivy-leaf, would run from twenty to forty feet if trained in a greenhouse. The common Ivy-leaf sorts trail but very slightly. There is not a scarlet Ivy-leaf yet published, but we have lately heard of private seedlings of great promise in high colours. Your plant seeds freely, and so does the white Ivy-leaf, and another pink one intermediate between the two,—the common Ivy-leaf never seeds.

PROTECTING PLANTS (O. P.).—Until your greenhouse is ready your *Camellias* will take no hurt under a single mat at night, nor, indeed, through all the winter, and their room in the pit we would devote to the bedders. The old wood on the standard Perpetual Roses, recently planted, should be cut out at once, and all the shoots pruned close.

NETTLE-LEAVED GERANIUM (H. W.).—There has not been a geranium of that name, as far as we can make out. Send us a flower, and one or two leaves of your plant, and very likely we shall be able to tell you what it is, and the right treatment.

VINE-PLANTING AND PRUNING (A Humble Tyro, and M. W.).—You will find your wishes attended to by Mr. Errington to-day. The brown spots on the green-stemmed vine may be mildew, but they frequently accompany ill-ripened wood.

WINE FROM UNRIPE GRAPES (A Subscriber).—The proportions are forty pounds of grapes, and thirty pounds of sugar, to four gallons of water, and follow the principles laid down by Mr. Livett in our ninety-seventh number. Mr. Livett will, perhaps, furnish a recipe for making wine with both ripe and unripe grapes.

LYON'S MAGNETIC POWDER, for destroying cockroaches, &c., may be heard of from Mr. Norris, at Messrs. Evans and Sons, Silver-street, London.

NAMES OF APPLES (J. S. G.).—These shall be given in our next number.

PACKING GRAPES FOR TRAVELLING (R. H.).—Mr. Errington's mode is as follows:—The box being ready, and sufficiently roomy—four inches deeper than the bunch when in its recumbent position—two inches at least of white paper-shavings may be placed in the bottom, tucking them somewhat close, but not tight. If any of the paper remains in masses, as cut from the quires, it must be separated into individual strips. The best way now is to surround each bunch as they are placed in the box with silver or tissue paper; this must be placed gently, and somewhat loosely, round the bunch, avoiding carefully all friction; and now a little extra paper-shavings may be so placed as to form a sort of nest for the bunch, and this is so managed, as that when the bunch with its paper is laid down there will be no occasion to move or to handle it again. As they are thus successively placed, a little paper must be introduced here and there as a wedge, or prop, to prevent the bunch from slipping. When the bunches are very large, or possess huge shoulders, some little pillows or cushions may be introduced between them and the body of the bunch; occasionally these may be formed by enclosing small portions of the paper-shavings in the silver paper, thrusting such in any situation where a great weight of berries are likely to infringe on each other. The bunches being all thus placed, some more of the little cushions may be thrust here and there over the general surface, so placing them as to render it impossible for the bunch to move in any direction. The surface being thus brought level, nothing remains but to fill up the box with paper-shavings, taking care that it is quite full, so that the lid in fastening down will have to be compressed a little. The finer the shavings are the better, and of thin white paper.

ROSES FOR LODGE PILLARS (Old Subscriber).—If what Mr. Beaton states to-day does not give you the information you require, do not hesitate to write to us again.

HEATING A SMALL GREENHOUSE (Rev. J. S. L.).—As your greenhouse is only seven feet by five feet, and you object to a stove, probably two four-gallon stone bottles, filled with boiling water, would sufficiently exclude the frost.

THOMPSON'S OR MONEY'S INVERTED-ROSE WATERING-POT.—Several subscribers would be glad to know where this can be purchased.

APPLICATION OF MANURES (C.).—This subject shall be attended to.

WORKS ON BOTANY (G. M.).—Smith's *Introduction to Botany* is the best book you can buy. It may be obtained of the dealers in second-hand books for three or four shillings. As your object is to obtain a knowledge of the science, buy also his *English Flora*, which may be obtained in four volumes for about eighteen shillings. With this you will be able to test your progress in the Linnæan system, by trying to detect the name of any English flowering plant you find. Neither of the other books you name would suit your purpose.

HARDY ANNUALS AND PERENNIALS (Rev. G. de G.).—In addition to the book you have, buy *The Flower Garden*, published by Messrs. Orr and Co., Amen Corner, London.

WORMS IN GRASS PLAT (J. B.).—There is no mode of permanently banishing them. Frequent sprinklings with common salt, and watering with lime-water, banish them for awhile from the surface. We have nothing to add to what has been lately said about destroying cockroaches.

DUTCH METHOD OF FORCING LETTUCES (W. Simes).—We are promised particulars relative to this.

VARIEGATED BORECOLE (An Enquirer).—This is the most beautiful for garnishing purposes that we have seen. Yellow, fringed with green; lilac, fringed with green; creamy, mottled and fringed with green, and being all in various forms and of various sizes, and all intensely curled, render it peculiarly elegant and attractive. Have you proved that it comes true from seed?

NAMES OF PLANTS, &c. (R. E. M.).—We think the seed you enclosed is of *Campanula Vidalli*, not *Loreii*. (C. S.).—Your slip is of *Salvia aurea*, or Golden-flowered Sage. We had not seen it for twenty years, and recognized it as an old, long-absent friend. It is a hardy, greenhouse plant, and ought to flower from May to November. Your compost is too rich; try a poorer, mixed with a little bricklayer's rubbish. (A Market Gardener).—Your plant, with fruit like a cluster of small blackberries, is *Phytolacca decandra*, or, Branching Virginian Poke. Poultry are fond of its berries, but it is said to give a disagreeable taste to their flesh; and the juice of the berries is employed to heighten the colour of port wine.

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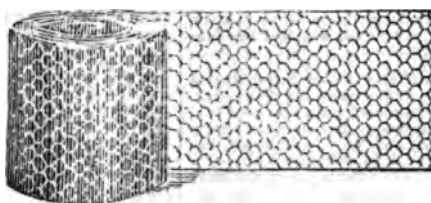
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WEEKLY CALENDAR.

M D	W D	NOVEMBER 20—26, 1851.	WEATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
20	Th	Waxen Chatterer comes.	28.995—28.696	50—43	S.W.	13	28 a. 7	3 a. 4	3 31	27	14 17	324
21	F	PRINCESS ROYAL BORN, 1840.	29.715—29.480	49—30	N.W.	01	30	2	4 54	28	14 2	325
22	S	Sun's declination, 20° 8' S.	29.643—29.429	55—41	S.	22	32	1	6 16	29	18 46	326
23	SUN	33 SUNDAY AFTER TRINITY.	29.551—29.337	53—39	S.W.	26	33	0	acts.	30	13 30	327
24	M	Grey Wagtail comes.	29.305—29.018	56—43	S.W.	46	35	111	5 a 19	1	13 13	328
25	Tu		29.317—29.093	52—31	S.W.	04	36	68	6 6	2	12 55	329
26	W	Oak leafless.	29.411—29.358	45—34	S.W.	02	38	57	7 2	3	12 36	330

In the chancel of the church of St. Olaves, Hart Street, London, repose the remains of DR. WILLIAM TURNER, who, we are told by Anthony Wood, "after all the rambles and troubles he had made and did endure, did quietly lay down his head and departed this life on the 7th of July in 1568." We have often had occasion to remark of this good old bigot, Anthony Wood, that he saw no excellence in any one that differed from himself either in politics or religion, and as Dr. Turner was totally at variance with him in both, it is a matter of course that Wood saw in him neither virtue or merit: "This person, who was very conceited of his own worth," says Wood, "was hot-headed, a busy-body, and much addicted to the opinions of Luther, would needs, in the height of his study of physic, turn theologian, but always refused the usual ceremonies to be observed in order to his being made a priest: and whether he had orders conferred upon him according to the Roman Catholic manner appears not. Sure it is that while he was a young man, he went, unsent for, through many parts of the nation, and preached the Word of God, not only in towns and villages, but also in cities. In his rambles he settled for a time at Oxford, among several of his countrymen that he found there, purposely for the conversation of men and books. At the same, and after following his old trade of preaching without a call, he was imprisoned, and kept in close durance for a considerable time." Such is the monstrously perverted sketch given by bigotry of one of the best men, one of the most consistent promulgers of the Reformation, and one of the most accomplished men of science who lived, suffered, and benefited mankind during the reigns of Henry VIII., Edward VI., Mary, and Elizabeth, and such a specimen serves, with many others, to warn the searcher after historical truth not to found his judgment upon the opinion of any one historian, but to base that judgment upon facts. Now let us see what are the facts in the biography of Dr. Turner. He was born at Morpeth, in Northumberland, and, aided by Sir Thomas Wentworth, completed his education at Pembroke College, Cambridge, of which college he was a student in 1538, and acquired a high reputation for his learning.

He applied himself to philosophy and physic, and early discovered an inclination to the study of plants, and a wish to be well acquainted with the *Materia Medica* of the ancients. He complains of the little assistance he could receive in these pursuits. "Being yet a student of Pembroke Hall, whereas I could learn never one Greke, neither Latin, nor English name, even amongst the physicians, of any herbe or tree: such was the ignorance at that time; and as yet there was no English Herbal, but one all full of unlearned cæcographies and falsely naming of herbes." At Cambridge, Turner imbibed the principles of the reformers, and afterwards, agreeably to the practice of many others, united to the character of the physician that of the divine. He became a preacher, travelling into many parts of England, and propagated, with so much zeal, the cause of the reformation, that he excited persecution from Bishop Gardiner, and that imprisonment mentioned by Wood. On his enlargement he submitted to voluntary exile during the remainder of the reign of Henry VIII.

This banishment proved favourable to his advancement in medical and botanical studies; he resided at Basil, at Strasburg, at Bonn; but principally at Cologne, with many other English refugees. He dwelt for some time at Wiessenburg; he travelled into Italy, and took the degree of Doctor of Physic at Ferrara. As, at this period, the learned were applying with great assiduity to the illustration of the antients, it was a fortunate circumstance to Dr. Turner, that he had an opportunity of attending the lectures of Lucas Ghinus, at Bologna, of whom he speaks in his *Herbal* "with great satisfaction; and frequently cites his authority against other commentators. Ghinus was the first who erected a separate professorial chair for botanical science; from whence he gave lectures on Dioscorides, which he continued for twenty-eight years with great applause. He procured the physic-garden to be founded at Bologna, to demonstrate the plants he spoke of. He was the preceptor of Cæsalpinus and Anguillara, who became two of the soundest critics in the knowledge of plants that the age produced. Turner resided a considerable time at Basil, from which place, in 1556, he dates the dedication of his book "On the Baths of England and Germany." During his residence in Switzerland, he contracted a friendship with Gesner, and afterwards kept up a correspondence with him.

At the accession of Edward VI. he returned to England, was incorporated Doctor of Physic at Oxford, was appointed physician to Edward, Duke of Somerset, and, as a divine, was rewarded with a Prebendary of York, a Canonry of Windsor, and the Deanery of Wells. He speaks of himself in the third part of his *Herbal*, when treating on the *Herba Britannica*, which he took to be the Bistort, as having been physician to the "Erle of Embden, Lord of East Friesland." In 1551, he published the first part of his history of plants, which he dedicated to the Duke, his patron. His zeal in the cause of the reformation, which he had amply testified by several religious tracts, induced him to retreat to the continent, during the whole reign of Mary. At her decease, Queen Elizabeth reinstated him in all his church preferments. In the dedication of the complete edition of his "Herbal" to the queen, in 1568, after complimenting her majesty on account of her skill in the Latin language, and the fluency with which she conversed in it, he acknowledges with gratitude her favours in restoring him to his benefices, and in other ways protecting him from troubles; having, at four several times, granted him the great seal for these purposes. He seems to have divided his time

between his deanery, where he had a botanical garden, of which frequent mention is made in his "Herbal," and his house in Crutched Friars, London. He also speaks of his garden at Kew. "From the repeated notices he takes of the plants in Purbeck, and about Portland," says Dr. Pulteney, "I should suppose he must have had some intimate connections in Dorsetshire."

Dr. Turner was one of the best naturalists of his era, but we must pass over his works on the constituents of the mineral springs of Bath, Germany, and Italy, nor must we be tempted to dwell upon his writings relative to birds and fish, nor upon his theological writings, nor upon those relative to plants, until we come to his chief work, for there is no doubt that he demonstrates in that volume that he was the first of our nation who really possessed a knowledge and critical judgment of plants. It was printed at three different times, in folio, with cuts. The first part at London, in 1551, under this title, "A New Herbal, wherein are contayned the names of herbes in Greeke, Latin, English, Duch, Frenche, and in the Potecaries and Herbaries Latin, with the properties, degrees, and natural places of the same gathered." For Steven Merdman, Lond., 1551. The second part at Cologne, 1562, during his exile in the reign of Mary. With this was reprinted the first part, and his "Book on the Baths of England and Germany." In 1568 these were reprinted, with the addition of the third part, which bears the following title: "The third part of Wm. Turner's Herbal, wherein are contained the herbes, rootes, and frutes, whereof is no mention made of Dioscorides, Galene, Pliny, and other old authors. Imprinted at Colen, by Arnold Birckman, in the year of our Lord 1566." The dedication, however, to the company of surgeons, is dated from Wells, June 24, 1564.

Dr. Turner's "Herbal" is printed in the black letter, agreeably to the general usage of the times, and is embellished with the figures of most of the plants he describes. The arrangement is alphabetical, according to the Latin names; and, after the description, he frequently specifies the places of growth. He is ample in his discrimination of the species, as his great object was to ascertain the *Materia Medica* of the ancients, and of Dioscorides in particular, throughout the vegetable kingdom. To this end he bestows much criticism on the commentaries of Fuchsius, Tragus, Matthiolus, and other of his contemporaries; and professes to have corrected many of their mistakes in the application of the names of Dioscorides. In all this he has shewn much judgment, and much moderation, in avoiding, more than usual, the licence taken by many of the commentators, of applying the names of plants described in Theophrastus, Dioscorides, and Pliny, to those of the western parts of Europe. What he says of the virtues of plants he has drawn from the ancients; but has, in numberless instances, given his opinion of their qualities, in opposition to those sages, and recorded his own experience of their virtues. He no where takes any doubtful plants upon trust, but appears to have examined them with all the precision usually exercised at a time when method, and principles now established, were unthought of; everywhere comparing them with the descriptions of the ancients and moderns. He first gave names to many English plants; and, allowing for the time when specific distinctions were not established, when almost all the small plants were disregarded, and the *Cryptogamia* almost wholly overlooked, the number he was acquainted with is much beyond what could easily have been imagined in an original writer on his subject.

The third part of his "Herbal," dated from Welles, June 24, 1564, he dedicates to the company of surgeons, and apologises for its imperfections: "Being so much vexed with sickness, and occupied with preaching, and the study of divinity, and exercise of discipline, I have had but small leisure to write Herballies."

As a brief specimen of this rare work we will extract what he says relative to the lettuce. "*Lactuca* is called in Greek *Thridar*, in English *Lettes* or *Lettuce*, in Dutch *Lattich*, in French *wag Lactue*. Lettis is of diverse kindes; one kind is called *Lactuca hortensis*, and in English Garden Lettis; the other kind is called *Lactuca sylvestris*, which is called in English Green Endive, and this is the herb that the Israelites eat with their Passover Lamb. There are divers sorts of Garden Lettes, for one is called *Lactuca capitata*, that is, Cabbage Lettes, because it goeth all into one head, as Cabbage Cole doth. Another kind is the common Lettes; some kinds have white seed, and other kinds have black seed." He then gives a short description of the plants, and concludes by observing of "the properties," that "The Garden Lettes, which is of a cooling nature, is taken to be good for the stomach; it bringeth sleep, softeneth the belly, and calleth forth milk, but when it is sudden it nourisheth more. But they that have an evil stomach were best to take it unwashed. Much use of Lettes hurteth the eye-sight; it is laid up of some, and seasoned and sauced in brine."

We must conclude, and it shall be with expressing a hope that we have evinced, despite the detractions of Anthony Wood, that Dr. Turner was a consistent Reformer, a strong labourer and patient sufferer for the truth's sake, and well worthy of Ray's brief character of him, "Turner was a man of solid erudition and judgment."

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 48.3° and 35.4° respectively. The greatest heat, 59°, occurred on the 31st in 1833, and the lowest cold, 17°, on the 23rd, in 1846. During the period, 89 days were fine, and on 79, rain fell.

A WEEK or two ago we made a few remarks on the manner in which specimens of fruits are sent to us for identification; and as it is a matter which is of some importance to us as well as our correspondents, we again return to the subject. We have been induced on this occasion to make the following observations, from having received a box containing fifteen specimens of apples, and out of these fifteen we are only able to identify nine of them. Now we hope our correspondent will not think us particularly dull because we cannot identify the whole; for apart from having good specimens of the general character of the fruit—which in this case we have not had—it is to be borne in mind that the fruit, being only a small part of the tree, and that part, too, which is most subject to be influenced by soil, exposure, and season, we have many other characters to become acquainted with before we can decide with confidence. The flowers, the leaves, the wood, the habit of the tree, and the season of maturity, are all important and necessary to be known; but as we cannot expect to be furnished with all of these, yet if our friends would take the trouble to state some particulars in connection with the varieties sent, they would greatly facilitate our labours, and reap advantage to themselves.

Of fruits, as of plants, there is what is called *geographical distribution*, that is, there are certain varieties which are peculiar to certain districts, and which are only to be found in particular localities. Fortunately, we are intimately acquainted with all the great orchard districts of these kingdoms, and know the varieties which are cultivated in them. If, therefore, we knew whence the varieties came, that would be one step towards attaining our object; then, a knowledge of the season of maturity, and the uses to which they are applicable, whether for the dessert or culinary purposes, would be desirable; but, above all, let us be furnished with well-grown, characteristic specimens. It is impossible to tell what some are which have recently been sent us, they were evidently taken from old, exhausted, and diseased trees, and were what is popularly termed *gnarly*, being so void of character as to pass just as easy for one sort as another. Let the specimens be entire, having the stalk and eye perfect; and with attention to these remarks our friends will be the gainers. It is our wish to state with confidence what the fruit really is, and not what it might be, or what it is like; we would not have any guess-work in the matter, and we, therefore, trust that in future our correspondents will aid us in contributing to their gratification and our own satisfaction; for there is a great deal in this latter object—that we may ourselves be *satisfied* with what we have done.

R. H.

PURSuing our observations on the science of plant-culture, we next come to the *stem* and *branches*. Although every member of the vegetable form, from the minutest root to the most fragile flower, have their epidermis, cellular integument, bark, woody fibre, and medullary matter, yet as these are most apparent in the stem and branches, they can be commented upon most

readily in this chapter, devoted to the consideration of those vegetable members.

The first of these, the *epidermis*, is analogous to the human cuticle, or scarf skin, being the external envelope of the whole surface. It is commonly transparent and smooth, sometimes hairy; in other instances hard and rugged, occasionally so abounding with silica or flint, as to be employed as a polisher for wood, and even brass. In every instance it is a net-work of fibres, the meshes of which are filled with a fine membrane. The epidermis appears to be designed as a preservative from the injurious effects of the atmosphere, to regulate the quantity of gaseous matter and moisture respired, and as a shield from the attacks of animals, &c. It is certainly devoid of sensation. The texture of the membrane between the meshes varies much in different species of plants. In very succulent plants, it is so contrived, that it readily allows the absorption of moisture, but prevents perspiration. Such plants are, consequently, well qualified to inhabit hot climates and dry soils. Neither is it at all impossible that it possesses the quality of allowing the passage of some gases, and rejecting others, as the bladder of animals permits water to pass through its texture, but is impervious to alcohol. In old trees it cracks, and in many cases becomes obliterated, the dead layers of bark performing its offices. Its growth is slower than that of other parts, and its powers of expansion, though great, occasionally cannot equal the rapid enlargement of the parts it incloses and defends. This is very frequently the case with the stem and branches of the cherry; the tree is then said by gardeners to be *hide-bound*, and is remedied by making longitudinal incisions. It is still more apparent in the fruit of the cherry and plum, when rain falls abundantly during their state of ripeness, their pulp swells so rapidly, that in an hour or two the epidermis of every ripe fruit upon a tree will be cracked. Gardeners are very prone to scrape with no gentle hand the bark of their fruit-trees; whereas every care should be taken not to wound its surface unnecessarily, and never to reduce its thickness until all danger of severe frosts are passed.

The epidermis regulates the evaporation from a plant, and preserves it in some degree from the detrimental sudden changes of temperature to which our climate is liable. The birch (*Betulus alba*), has more films of epidermis than any other European tree; and it ascends to greater heights in the Alps, and approaches nearer to the frozen zone than other trees of the same climates.

Immediately below the epidermis occurs the *cellular integument* (otherwise known as the *parenchyma* and *pulp*). It is a juicy substance; and, being the seat of colour, is analogous to the *rete mucosum* of man, which is red in the white, and black in the negro: the mass of apples, &c., is composed of it. Leaves are chiefly formed of a plate of it, inclosed by epidermis. In herba, succulent plants, leaves and fruits, if it is destroyed, like the epidermis of the same, it remains unrestored; but in the case of trees and shrubs, it is regenerated after each removal. In leaves it is generally green; in flowers

and fruits, of every hue. It is always cellular, and evidently acts a part in the secretory system of plants.

Under the cellular integument occurs *the bark*, which, in annual plants, or branches of one year's growth, consists of a single layer, scarcely distinguishable from the wood; in older stems and branches, it is composed of as many layers as they are years of age. It is in the innermost of these, which is called the liber, that the vital returning circulation and secretions are carried on for the time being almost exclusively. These layers are concentric, or, as they are usually termed, *cortical layers*; they are thicker in feeble plants than in more vigorous ones of the same species; they are formed of waving longitudinal fibres, the meshes of the net-work they thus constitute being filled with pulp. If the outer bark is destroyed, but the wound does not penetrate below the liber, the wound is healed up, otherwise the removed part is unregenerated. In some roots, although only annuals, the bark is composed entirely of liber, and is very thick, as in the carrot and parsnip, in which it is evidently separated by a light-coloured annular mark, from the central or woody part. The liber is composed of various longitudinal tubes, in which the true sap of the individual descends after elaboration in the leaves, consequently here are found the substances that are the peculiar products of each in the most concentrated state, as the resin of the fir, the bitter principle of the cinchona, or Peruvian bark, &c.

We will here pause, to remark upon some of the remedies which have been recommended for the removal of insects from the bark of trees. Oil has been directed to be smeared over them, for the destruction of the *aphis lanigera*, moss, &c. Whether this application will answer such purpose we will not stop to enquire, but will rest content with observing that a more deleterious one is scarcely possible; for on the same principle that it destroys the parasites, namely, by closing their spiracles and pores, and thus suffocating them, it in a like manner clogs up the pores of the infected tree, and, in every instance, insures a weak and unhealthy vegetation; for it is not a transient remedy that will cease in its effects as soon as it has attained the desired end. The oil dries, and, as it were, forms a varnish over the epidermis for years, unremoved by exposure to the atmosphere; and this effect is more decidedly insured by linseed oil being the kind recommended, it being one of the most unctuous and quick-drying of the oils. The most effectual, most salutary, and least disagreeable remedy is of trivial expense, and which a gardener need but try upon one individual to insure its adoption. It is with a hard scrubbing-brush, dipped in a strong brine of common salt, as often as necessary to insure each portion of the bark being moistened with it, to scrub the trunks and branches of his trees at least every second year. It most effectually destroys insects of all kinds, and moss; and the stimulating influence of the application and the friction, are productive of the most beneficial effects. The expense is not so much as that of dressing the trunks with a solution of lime, which, however efficient in the des-

truction of moss, is not so in the removal of insects,—is highly injurious to the trees, by filling up the respiratory pores of the epidermis, and is decidedly a promoter of canker. Let our remedy be brought by every orchardist to the test of experiment *under his own eye*, that it may be effectually done, and he will not require us to theorise. Facts are stubborn opponents.

The injury inflicted by stopping the pores of the epidermis on the stem and branches of a tree, is at once evident from the fact, that oxygen and water are absorbed, and carbonic acid evolved from them, the same as in the leaves, which operations are all parts of the process of elaborating the sap. It is no trivial inspiration of oxygen; for, in twenty-four hours, the branch of an apple-tree has been found to inhale five times its own volume.

If the fibres emitted by the ivy, by which it clings to other trees for support, do not aid it in obtaining nourishment, yet by filling their respiratory pores, they are injurious, and should never be allowed to cling around serviceable trees.

GARDENING GOSSIP.

THE *London Horticultural Society* are proposing to reduce the amount of the sums to be paid by those who wish to compound for their annual contributions; and it is intended in future that a Fellow, at the time of his election, may so compound by paying £42 10s., and at the end of twenty years by paying £21, with some intermediate sums if the payment be made at intermediate times. So far as these sums are reductions below those formerly charged, so far are they praiseworthy; but they stop very much short of what is desirable if the object of the Society is to benefit the many. The day must come when the Society will be entirely remodelled; for it will not be tolerated that an association capable of taking the lead in all that is useful in horticulture, and that might improve the orcharding and kitchen-gardening of millions, should stagnate as a genteel Vauxhall, celebrated chiefly for its exhibition to a select few of other people's horticultural productions. A total change from this must come, and the effective step towards it will be reducing the annual payments required from its Fellows, and by thus rendering it more generally an object of interest.

When, in our *fifth volume*, we gave an account of *Philip Miller*, the never-to-be-too-highly-estimated author of "*The Gardener's Dictionary*," we quoted Dr. Martyn's observations, that "Mr. Miller was of a disposition too generous and careless of money to become rich, and all his transactions showed more attention to integrity and honest fame than to any pecuniary advantage." An extraordinary confirmation of this is now before us, in which we do not know whether most to wonder at the liberality of Mr. Miller, or at the beggarly parsimony of the Apothecaries Company. The following is an exact copy of the original memorandum in Mr. Miller's own handwriting:—

"An Exact Account of all the money received, and paid to labourers for keeping of the Botanic Garden at Chelsea, by Philip Miller, gardener, from Christmas, 1765, to Christmas, 1766. £. s. d.

The annual salary received from the Apothecaries Company . . . 50 0 0
Taken at the gate for shewing of the garden . . . 31 4 0

Total . . . £81 4 0

Paid to three men, for 52 weeks, at nine shillings each . . . 70 0 0

To a fourth man, for 8 weeks in summer . . . 04 0 0

£84 0 0

Add to this money paid for freight of several parcels of seeds, which came by the post, and also for freight of plants with charges at the Custom House . . . 15 5 0

£89 5 0

By which it appears that instead of having any money for my own care and labour; I am considerably out of pocket. And from the inclemency of the present season, I have not received from the gate four shillings per week since Christmas last, so that unless the Worshipful Company of Apothecaries do not assist me, it will be impossible to keep the garden with the present stock of plants in a proper way."

"It is generally believed," says the friend who possesses the original, "that Miller was a man regardless of accumulating wealth, and from the statement which he here gives, it is evident he had, from his connection with the Apothecaries at least, little opportunity of doing so, even had he been so inclined. Fifty pounds a-year to Philip Miller; and that too in 1766, when he had been forty-four years in their service! Generous Apothecaries! And out of the sum of fifty pounds a-year, with the chance of admission fees, which during this year amount to £31 4s., he is called upon to pay 'three men, for fifty-two weeks, nine shillings each,' and 'to a fourth man, for eight weeks in summer, £4,' besides £15 5s. for carriage of seeds and plants 'with charges at the Custom House.'"

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.



TWO-COLOURED EPISCIA (*Episcia bicolor*).—*Gardeners' Magazine of Botany*, vol. iii., 161.—This new plant is one of those little Gesnerworts common in tropical America, where they lead a kind of quasi-parasitical life, rooting on the stumps of dead trees, or nestled up among the forked branches of living ones, deriving much of

their nourishment from the excessive moisture in the atmosphere, and with their hair-like roots seizing on such dead and decaying vegetable matter as come within their reach. The present species was discovered in New Grenada, by Mr. Purdie, whence he sent it to the Royal Botanic Garden, at Kew, where it first flowered in 1847.

It is said to be a free-flowering plant during the summer months, the flowers opening in succession, and lasting a considerable time in perfection. The leaves appear comparatively large for so dwarf a species; they are not unlike those of a *Gloxinia*, whilst the mode of flowering in clusters is after the manner of a *Nymphaea*. The individual flowers are very pretty, with a white throat and eye, and the five divisions of the limb are of a light purple colour; the throat, or mouth, of the tube, is also spotted with purple dots; the whole collected together into a cluster, in the midst of the bright green leaves, have a gay and agreeable effect.

The genus was named by Martius, and is derived from *epi*, upon, and *scia*, shade; the plant delighting in shady places. All *Gesneriworts* (*Gesneraceæ*) are referred to the second order of the fourteenth class in the Linnæan system, *Didynamia angiospermia*. B. J.

Propagation and Culture.—This is a very desirable little plant for amateurs with small stoves, and for gardeners who have to provide little gems for furnishing china stands for all sorts of odd places and corners about the drawing-rooms. There can be no doubt about its readiness to increase from cuttings of the short side-shoots, and from individual leaves. The best compost to grow it in is one-half peat and one-half rough leaf-mould, with a little sand to keep it open; but I have grown such plants in nothing else but green moss, and I have seen several allied species do very well in pure sand. The great point is to give them a close, moist heat, in a frame, in the spring, and as soon as flower-buds appear, to inure them by degrees to stand in a cool, dry place to flower in, and after flowering to allow them no more water than will keep them from casting their leaves before they are quite ripe. D. BEATON.

THE FRUIT-GARDEN.

THE WHITE CURRANT.—REST-PRUNING, &c.—(*Continued from page 60*).

AFTER such full advice concerning the Red Currant, there is no occasion for lengthened observations: still there are some features connected with the White Currant and its culture, which demand a special notice.

The white kind is, we think, more ornamental when in full bearing and ripe than the red; perhaps because the last produces much less breast-wood or annual spray. It is, however, altogether less gross, and seldom acquires that massiveness in the older wood to which the red attains. Under these circumstances the fruit, which, in the superior Dutch kinds, is larger in the berry, makes a greater display in a much less compass, and for such reasons is eminently fitted for a course of training in the immediate vicinity of the flowers, if necessary, or in combination with espalier fruit trees.

Preservation of, and retarding the fruit, too, ought to be had in consideration, when determining their situation; and as "rest-pruning" must ever be liable to

modifications through variations in the mode of training, the latter must, less or more, be referred to in our pruning letters, in order to render the advice explicit, and as free from error as possible.

It must be kept in mind by the earnest cultivator of this beautiful and useful fruit, that a *generous soil* is particularly necessary. This will not consist in the application of manures alone, but also in securing a good staple. We are told, in the natural history of the Currant, by some authors, that it inhabits mountainous woods, and that it affects the banks of running waters. This much implies a desire for partial shade, a free circulation of air, and a soil approaching the character of alluvium. Notwithstanding that the late talented Dean of Manchester, Dr. Herbert, has wisely observed, that it is not at all times judicious to pay a slavish regard to the conditions under which plants are found in a state of nature, but occasionally to modify the conditions, according to altered circumstances, and the objects of the cultivator—we may here observe that, although we have occasionally known good crops of the White Currant on sandy and dry soils, yet the finest berries, and the healthiest bushes, have been on soils similar to those in their native localities. If, indeed, they be planted on soils at once poor and dry, they will not repay the trouble of training. Having thus secured, it is hoped, the requisite conditions as to soil for these useful pets of either the kitchen-garden, the slip, or even the flower-border, we must proceed to remark on "*rest-pruning*;" first observing, that as they are peculiarly liable to the depredations of birds, fowls, &c., they should not be thrust too far out of sight. Preservation and retardation, as applied to this Currant, must be treated on separately.

Now it must be repeated, that as the White Currant does not produce one-third the summer spray which the red does, much less *rest-pruning*, therefore, will suffice, whether of shortening back or of thinning-out; indeed, it is not unusual to meet with bushes possessing more berries than leaves on soils where they thrive. It is a maxim pretty well established, that although a bush or tree may produce and ripen an overplus amount of fruit, yet that it requires a given amount of healthy foliage to secure a full flavour and a fine appearance. Very little shortening back, therefore, is necessary, and as for the side-spray, we do think that it may be left a little longer than in the red currant, in order that, by encouraging the growing principle *laterally*, much strength may be added annually to the numerous clusters of spurs with which their stems are generally studded; these lateral branches generally constituting centres to such groups of spurs, neither need the terminal points be much shortened. The finer white Dutch currants seldom produce above eight inches in length of extending leader, and from their tame character of growth, as compared with the red kind, they naturally possess a much greater tendency to produce spurs; just as much, therefore, may be pruned away as appears diminutive, shrunk, blighted, or twisted in the wrong direction, for any or all of these evils may befall the shoots; indeed, it generally happens that one or the other does occur. For further directions connected with pruning, see the article Red Currant, page 60. We do not know that anything further of a *special character* can be pointed to here; it may, however, be observed, that they require richer top-dressing than the red variety; of this more by-and-by, under its proper heading.

THE GOOSEBERRY: *Rest-Pruning*, &c.—Here we have a most important bush in the fruit-garden, and, indeed, as it sometimes is, connected with the flower-border. Thinning-out is the first matter with the gooseberry; indeed, they may be cultivated in tolerable perfection by this course of pruning alone. Most of our best practitioners, nevertheless, are aware of the benefits arising

from a judicious shortening of the points of the young wood, and such has been our practice for many years.

We would fain here offer some ideas about training, &c., but such would manifestly swell the present paper too much, and must be reserved for future chapters on training.

Where a considerable extent of gooseberry bushes prevail, the pruning of extensive rows becomes a serious item in the labour account, unless some assiduity be exercised in economising labour. Our practice is, therefore, to run the hedge shears along the general outline previous to the pruning, just dashing off those extreme points about the removal of which the operator has not a doubt. This much facilitates the hand-pruning, or thinning, which must follow it; the hand of the pruner enters now with great facility. Of course these remarks apply to full-grown bushes; young ones require a nicer handling. The knife follows, of course, and now the object is to prune away most of the *interior spray*. Those who have been accustomed to leave much wood in the interior of their bushes, under a false economy, have no idea of the vast difference there is in the produce between such bushes, and those from which nearly all the interior spray has been removed, both in the quality of the fruit and in the ease with which the produce may be gathered. We would undertake to gather two bushes at least of the well-pruned for one of the other class, and certainly with much less bloodshed. The quality and amount of the fruit, too, will be found far superior. It is, indeed, ridiculous to expect good fruit from the interior of the bushes, and the half-starved spray in that situation does serious injury to the best bearing wood, which is, or ought to be, always at the exterior. There is no occasion for the pruner to leave any spurs at the base of the shoots removed, they are always prolific in successive shoots, until they become exhausted with age and bearing, when the sooner they are destroyed the better.

The thinning-out completed, removing, as before observed, most of the interior shoots, and duly thinning the exterior, leaving the bearing shoots on an average about three inches apart; the points of the shoots must be looked over, removing immature portions, and as much of curved or ponderous twigs as might, by bending with their fruit, derange the general character of the tree. Our practice has been of late years, to leave more young shoots on the exterior than good pruners are wont to do, and the surplus of these we remove at the end of April. This is done with a view to the depredations of birds, for the Finch family and the Tits are sad rogues in this part of the kingdom; it is not unusual to see a row of bushes totally stripped, the ground beneath looking as if sown thickly with seeds. Those who value their crop should, however, take care to protect carefully in the end of February, especially if it has been a hard winter, or that a few warm days have excited the buds prematurely; the birds under such circumstances, or after a long snow, have such a longing for the new vegetable produce of the rising spring, that the most excitable buds, among which we may fairly place the gooseberry, are quite likely to be victimised.

About the training of young bushes, little can be added to that about the Red Currant, the modes of preparation and early training being very similar. The chief difference is, that the shoots of the Gooseberry, at about the third year from the cutting state, may be left thicker than the distance prescribed for the Currant. The centre of the bush must be kept well open; and so pruned as to give the branches a tendency outwards, unless the kind be *very drooping* in habit, when it sometimes becomes requisite so to use the pruning knife, as to coax them rather inwards.

The management of the show berries, being conducted

on a somewhat different footing, may one day form a chapter by itself.

R. ERRINGTON.
P.S. *S. N. V. and Moore's Victory*.—Like you I must lament the loss of some of our old and favourite Geraniums, many of which would doubtless still be a boon if restored. The floral public is highly indebted to Mr. Beaton for bringing so many of these good things once more before the public. There is the *Rouge et noir*; I remember well receiving my first plant of it in 1829, from Dennis, (I think) in the King's-road; and with it came an excellent kind, named *Quercifolium superbum*, much after the manner of your *Moore's Victory*, which must, no doubt, exist somewhere: it was too good to be entirely rejected. Then the old *Ignescens* of Sir R. Hoare: what a gay figure have I known a shelf of these dainty kinds make, having the old *Pelargonium tricolor*, *P. ardens*, *quinque vulnerum*, &c., amongst them. Like the Fuchsias, the mere size has carried too much importance, but the public will retrace their steps in this respect; indeed they have already begun to do so. It so happens that, as a general rule, with size of flower comes size of foliage, and as another clumsy concomitant, size of plant. Now this is all very well for the corridor and balcony men, but mark how it ties the hands of our amateurs, with their little band-box greenhouses. Thus much digression on behalf of these beautiful horticultural minnikins: now to the point in hand. I cannot myself furnish *Moore's Victory*, but ten to one some of the subscribers to THE COTTAGE GARDENER will do so. As to the old *Commander-in-Chief*, I well remember an old and enthusiastic gardener, a neighbour, driving to Davey's, in the King's-road, sometime about the year 1813, (as I think) to purchase one; and what a fuss was made within his little circle about "the guinea Geranium," which produced such large flowers. I much fear this *Commander* would simply rank as a subaltern in these marvellous times; when the last new thing is, of course, "the best in the world." Davey made first a great noise about the *Prince Regent*, some forty years ago. Then came out the *Royal George*, then *Generalissimo*, and then *Commander*, and a pretty sum he made of them.

Most of these bouncing Geraniums were, I conceive, obtained, on the one side at least, from the old *P. cuculatum*, which, by the course of culture pursued when I was a lad, generally contrived to blossom when "full of years."

R. ERRINGTON.

THE FLOWER-GARDEN.

NOISSETTE ROSES.—It is in this section that we must look for climbing roses to plant against the front of dwelling-houses with a south aspect, including also south-east and south-west. A west aspect, in a sheltered situation, will suit some of them, and some, with high titles, are not worth planting at all—*Solfuterra*, for instance. I have grown this useless rose for some years under the most favourable circumstances; in a border as rich as it could be made, twenty inches deep, five feet wide, and as dry at the bottom as would suit a Muscat of Alexandria; a wall due south, or nearly so, kept warm with hot water pipes in winter, and covered with good glass from the beginning of October to the middle of May, with power to give it as much air as if it were on an open wall; yet in five years I only got one really good flower from it, and that was a good one certainly. It generally flowers early and late, in May and again in October, but not very freely. I consider it altogether unfit for our climate; nevertheless, if others have found it to answer well under other circumstances, and will send us accounts with the proper names of the places and writers, we shall publish them and cancel my verdict; but if we cannot establish a good character for

it, the best way is to scratch it out of the lists. The celebrated *Cloth of Gold* is a Noisette, and one of the best if it was a certain bloomer, which it certainly is not;—I believe the fault is not altogether in our climate, but that it is partial to particular soils, like the *Old double-yellow Rose*; for I have known it to bloom tolerably well without any particular indulgence, and I have seen it fail under very good management. A friend of mine blooms it most beautifully trained in a cool, airy conservatory. Unless its roots are well confined it should not be much pruned. Established plants of it, which refuse to bloom freely, should be root-pruned about the end of August, in order to check its late growth, and so ripen the young wood before winter.

There are four good *White Noisettes*; the best of them is *Lamarque*, a strong pillar Rose; the next best is *La Biche*, another pillar Rose, which runs much farther than *Lamarque*, and does not bloom so late. The next two whites are dwarf—*Aimée Vibert* and *Miss Glegg*. The latter is the best bedder of the two, on account of its growing more freely, and its better scent. The scent of *Aimée Vibert* is very bad indeed: it should never be put in a nosegay. *Jaune Desprez* is one of the best of this class to plant against a house with a south or west aspect. It covers a large space in a few years, and is remarkably sweet after the manner of the tea-scented ones, but it is not a safe one to bud other Roses on, as a hard winter is apt to injure the bark and young wood. I had a very fine specimen of this a few years since against my house, and, being close at hand, I used to bud every new Rose I could get on it; but, with the exception of *La Biche*, they all died or dwindled away on it in three or four years. The *Tyrian Purple Noisette* (*Pourpre de Tyre*) is a most beautiful pillar Rose, and a good one to fill up the bottom of a rose-wall when the strong-growing ones get naked. It is the best half-climbing Rose we have of that colour—a purplish crimson. It only flowered with me at the end of strong shoots. If older plants of it made small side-shoots, and flowered on them like *Gloire de Rosamene*, it would be a charming Rose; but I fear the habit of it will not allow of that style of free-flowering. A cross between this and the *Crimson Boursault* would give us such a climber as one of our correspondents asked last summer—a perpetual evergreen, dark-flowered climber. *Fellenberg* is well spoken of as another high-coloured Noisette, but I never saw it in flower myself; considering, however, the small number of dark Roses in this class, I admit it into this selection. To have flowers of these two shades of dark Noisettes in October and November for mixing with the *Gloire de Rosamene* in nosegays, all of them with the buds half open only, it will be necessary to begin pruning, or rather stopping their second growth, as soon as the shoots are six inches long, and to keep on stopping to the end of August, without letting them flower at the end of June. This will throw them into close bushes, which will begin to bloom by the end of September, or early in October, when they would need a strong dose or two of rich liquid manure, and would well pay for all this attention for two months or more. I am not so sure about the Noisettes keeping in bloom very late without some glass protection, but I have often seen the *Rosamene* in good bud at Christmas. All the strong *Bourbon Roses* which flower only on the top of long rambling shoots would be much prettier in beds if they were stopped in the same way; that is, between the summer and autumn bloom; at any rate it would be a good plan to have some of the best under this treatment in the reserve ground, so as to have many varieties to cut for glasses and nosegays very late in the season, and when we shall have rose-houses on Mr. River's orchard-house plan, that will be the proper plan to follow for having flowers all the winter, and to have no winter-pruning at all, merely to stop any shoot

which comes up too strong. Then all the pruning will be from the end of June to the middle of September, and not only that, but I am convinced that in a few years we shall find out the whole of the Noisette Bourbons and Hybrid Perpetuals—that is, all Roses which bloom in the autumn may be reduced to this kind of treatment, whether we have glass houses for them or not, and that winter-pruning will be confined to the June flowers only. Perhaps, too, we may find out that the strong *Hybrid Chinas* and *Bourbons* will do better, or, at least, as well as they do at present, if they are not pruned in winter. In that case we shall always gain ten days or a fortnight in May, as I found the case with the unpruned perpetuals last May.

This week I have got an old garden memorandum-book, in manuscript, beginning with 1791, and carried on to 1830 by a great garden amateur; on one page is entered all the plants he bought, and from whom, and the prices; the other page is left blank for future memoranda, among which I see as good and rational observations on the cultivation of Roses, in and out of pots, forcing, &c., as is to be met with at the present day; indeed, the very plan I adopted last year with the Hybrid Perpetuals was hinted at in 1799 in this book. The writer said it was of little help to cut down the strong stems which grew directly from the roots, meaning suckers; in two or three years they wearied themselves with flowering so much. After that he throws out a hint about allowing *root-stems* to form a new bush every year, and only cutting such as became weary of flowering; but whether he put this into practice or not, is not said. He took stock every third or fourth year, that is, took down a list of all his plants at stated intervals, and the *Golden-leaf Geranium* is among them from 1793 to 1814, when he ceased to name his old kinds, and mentions his yearly purchases of them only. This *Golden-leaf* is our *Golden Chain* of the present day, and it seems to be the oldest seedling that is preserved from the *Cape Scarlet*, the oldest in cultivation of that breed, but now supposed to be lost; I had it at Shrubland, however, this very season. When the *Golden Chain* makes a green shoot, as it sometimes did with me, I believe that to be identical with *Inquinans* alias *Cape Scarlet*.

Now for our own times and our Roses. *Ophirie* is, perhaps, the nearest to a yellow of all the Noisettes that are worth a place against the wall of a house, with the exception of the *Cloth of Gold*; but a good yellow, free-blowing Noisette is still in expectation only. *Mrs. Siddons* is a better yellow than the last, but too dwarf for a wall, unless it were to fill up at the bottom; and *Clara Wardel* is much in the same way. All the Noisettes with red tints I care little about, as we have much better sorts of the same habit, and quite as hardy, in the strongest Bourbons, which, if not strong enough to run over a house, will do very well to be budded on *La Biche*, or on *Felicite Perpetuelle*, for that purpose. To save room, I shall not in future repeat my lists as I have done, but when they are finished I shall request, Mr. Editor, to repeat them all in alphabetical order, with names of classes, &c., for ready reference.

HARDY CLIMBING ROSES: Evergreens.—The best of all this class is unquestionably *Felicite Perpetuelle*, or *Perpetue*, as some call it, because every other free-growing Rose will grow on it by budding. If I had a castle to cover round and round with all manner of Roses, I would guarantee that I could flower the *Malmaison* Rose on the highest pinnacle of it by means of this one climber, and the way I would go to work would be this: I would plant young plants of this climber at nine, ten, or twelve feet apart, according to the height of the building, and to guard against suckers. I would have the plants from strong cuttings made in October and November, and all the eyes picked out of them except

the two top ones,—the cuttings being six inches long, there would be at least four inches of clear stem between the roots and the first branches, and that would be quite sufficient to keep down suckers from where they are most apt to grow. Supposing the two eyes to grow, I would give them their own free will the first year, and perhaps some manure water into the bargain, if the summer was dry. At the end of October I would cut them down to ten inches, leaving three or four buds on each for shoots to begin to bud on. I would bud the strongest sorts near the bottom, and would leave some shoots unbudded every season until the top was reached. On them, and near the top, I would bud the more dwarf sorts. In this way a whole collection of Perpetuals might easily be established, at little cost, on one kind of climber, or on half-a-dozen of them if it was preferred, such as I shall name presently; a shoot here and there of the climbers themselves would be left to make a greater variety of flower; and to guard against the bottom of the wall getting too bare after a few years, I would plant pillar Roses along the bottom, such as *Gloire de Rosamene* and the *Tyrian Purple*, &c. *Princess Maria* is the next best of the evergreen climbers, both for budding on and for tint, being the reddest of them; after that *Myrianthes*, tinged with pink; *Princess Louise*, also a little tinged with pink on a white ground; and *Rampant*, a fine delicate white Rose. All these bloom in immense clusters, but none of them require a wall, unless for the purpose of budding others on, unless it were a north wall which one wanted to cover fast. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

CHARCOAL, ITS USES FOR PLANT CULTURE.—It is no easy matter now-a-days, to be the originator of a new principle. Discoveries and improvements in cultivation are generally the mere working-out of facts previously known, but not sufficiently generalised. The ascertaining of a fact is not so much the thing, as the being the first to make that fact bear upon practical utility. The comparatively uncultured genius, who delighted himself with the wooden clock, the result of many an anxious whittling, was no less a genius, though clocks far superior existed, which he had never seen, and knew not of. Hobbies most men like to ride, but it is rather disheartening for them, when closely surveying a territory which they imagined they alone had discovered, to find the marks and foot-prints of others who preceded them. The man whose aim is to be practically useful, has no such misgivings. More than half-a-century ago, Arthur Young made many trials with *charcoal-dust* as a manuring agent, but with no very clear definite results. For a similar period, the dust and the soil through which the volatile parts of the wood passed during the process of charring, had been used successfully for improving the soil in many districts. Earlier still, in great charcoal districts on the continent, the farmers found that though the site of the heaps was barren for a lesser or greater number of years, according as that soil was open and porous, or stiff and tenacious, partly owing to the roasting heat it had experienced, but chiefly to the superabundance of potash with which the ground was saturated, yet afterwards, for a series of seasons, it was more than ordinarily fertile. For the using of charcoal as an agent for propagating purposes, within these ten years, we are chiefly indebted to Mr. Lucas, of Munich; for its adaptation to cultivation in every circumstance, from the Banana to the Cabbage, we are principally indebted to Mr. James Barnes, of Bicton. Whether that last-named eminent cultivator had known what is stated above as to charcoal-heap sites, is a matter of no importance. He *did* observe the luxuriant vegetation

around the outsides of where the charcoal had been burned. Thousands must have noticed the same fact. The inference of obtaining similar results in cultivation seems almost intuitive, but who of the thousands made it? How very simple our greatest discoveries and improvements look *after* they are known. But for the experiments at Munich, and the shrewd calculating inductive philosophy of a Barnes, our gardens and potting-benches might, for years to come, have been destitute alike of the nodules of charcoal and the rough made-for-the-moment compost, which has so much changed the mode of culture, and rendered the superintendant and possessor of plants more independent of temporary undue attention from the water pail.

Upon the reasons why charcoal exercises such beneficial influences, I am not learned enough to enter. Philosophers are not even agreed. But a result is no less a result, though there may be disagreement as to the mode in which a seen cause produces a seen effect. That charcoal is antiseptic, we know—that it decomposes very slowly in any circumstances, and in any times, but more quickly when in a state of powder, moisture applied, and in contact with the roots of plants, than when in larger pieces and kept dry, is *true*—that it absorbs carbonic acid and other gases from the atmosphere, and when in a rough state especially, neither changing much the character of the gases, nor being changed itself, but parting with them, though in general circumstances more slowly than it absorbed them, is *likely*—that it absorbs moisture very freely when fresh, and rather freely at all times, and parts with it more slowly than it receives it, is *certain*—that it is one of the lightest substances of a porous nature we know, and when placed in a pot among soil, almost incapable of becoming so wet as to be hurtful, or, unless under great carelessness, so dry as to be injurious, is equally *certain*. Leaving, therefore, the chemical question to the chemists, and dealing only with the mechanical, we find that, used with prudence and moderation, (for it is possible to have too much of a good thing) when finely divided, owing to its antiseptic and slowly decomposing, and thus slowly yielding of carbon, properties, either by itself or mixed with sand, or sandy soil, it is most useful in propagating, and that owing to its lightness and porosity, and absorbing of moisture, but not in excess, it is a most valuable mechanical agent in potting, rendering stiff soils sufficiently open to allow water and air freely to percolate, and rendering a very light soil more retentive of moisture than it would naturally be. Also, for the mere purpose of *drainage*, we find that rough pieces in the bottom of the pots are just as effectual as broken pots and pebbles, while in large specimens, the *lightness*, when moving often has to be resorted to, is no mean consideration, as even when saturated with moisture, there is no comparison in weight between it and pebbles and crocks. For a number of years, my use of charcoal, in a fine and rough state, has been commensurate with the limited supply I could obtain by charring all manner of rubbish or prunings. A condemned tree, or even a limb, was carefully kept until the season of winter, for affording charcoal in lumps, for though by no means the best period for charring, it is the best for us, so far as time and opportunity are concerned. As in the use of it, however clear the way, I sometimes got cast in an ugly pitfall, I will shortly state, as so many guide-posts, the circumstances in which I found its application the most satisfactory.

First, as respects propagation. I lately stated that the person who was near a roadside, might contrive from that roadside to get soil that would grow the greater part of plants grown in windows and small greenhouses. The washing of that road-drift would furnish fine, pure, gritty sand for propagating purposes,

almost equal to that sold about London, and elsewhere, as pure silver sand; the sand thus procured near home being *good*, in proportion to the quantity of stones on the road worn down by the traffic. For the propagating of almost countless numbers of soft-wooded plants every spring, I have found nothing equal to a third of light loam, a third of sandy road-drift, and a third of small charcoal, from which the finer dust was excluded by a fine sieve,—the charcoal averaging from half the size of a common pea, to less than that of the head of a pin. Over this is frequently thrown the slightest dusting of fine sand, just to prevent the air too freely entering. In such circumstances, the cuttings not only strike freely, but continue in health *a long period*, and maintain a stubby character and abundance of roots, when it does not suit your convenience quickly either to pot or plant them singly. When much more sand was used, the compost for these kinds of plants was apt to become too dense, and any extra moisture was very apt to cause the cuttings to mould and damp at the surface. When more charcoal was used, the cuttings generally struck root sooner; but if kept long in the striking pots, they assumed a rather unhealthy appearance, whilst the fibres, instead of being robust, became weak, slender, and attenuated, with the ends apparently decaying. In trying this mode, therefore, it is safer to have less of the charcoal than more, and, secondly, care must be taken that *ashes* form no part of the charcoal. Beginners, instead of taking the dust from a heap of their own burning, had better take some pieces,—it matters not how small if well burned through—and break them for use, as they then will be certain they have no blackened ashes, which would, in most cases, contain too much potash to be safe. I was going to write every case, but that would not be correct, as some things will grow in a considerable portion of ashes.

Secondly, in propagating such soft-wooded plants in autumn, to stand the winter in the cutting-pots, less charcoal must be mixed with the compost,—about a fifth will be very serviceable; but more attention must be paid to drainage, and for this purpose, rough charcoal may well form a considerable item. During the winter, if you have no means of dispelling the damp in dull, foggy weather by fire, or if the case should be opposite, your plants in the cutting-pots should stand in the dry air of a parlour or sitting-room; in either case, scattering such small, but not dusty charcoal, on the surface of the pot, and among the bases of the tender stems, will be a security from danger. In either case, pots otherwise similar, and treated alike, those that were charcoaled, were safe—those that were not, were more or less injured. Without the charcoaling, more care and attention was required to keep them equally healthy.

Thirdly. In striking hard-wooded plants from cuttings, I have not found much difference when using pure sand alone, and sand with about a third of fine charcoal. I have found the importance in either case of having a layer above plenty of drainage, consisting of compost, similar to that in which the plant delights most, but more light. As a whole, and taking the average of a great many cases, the pots with the charcoal struck soonest, but unless there was an inch or more of compost beneath the mere striking medium, they required to be potted sooner. This seems to be the reason why there are so many failures with striking plants in charcoal *only*. After giving the matter a fair trial, I now seldom resort to it, because what was gained in time, was too frequently lost from future carelessness and procrastination. In almost every case tried by me, the rooting process was expedited in the charcoal, and the smaller it was, the quicker were roots formed, but in almost every instance, the plants became unhealthy, if not quickly potted. I pretend not to assign a reason. I do not say that others have experienced the same as I

have done. I do not say that all plants are alike. There are plants, that in the consuming of garbage seem quite as much at home as animals, whose province it seems to be to clear the earth of animal impurity. Let philosophers say what they will, facts would incline me to suppose, that small dusty charcoal undergoes decomposition when used for such purposes. There is something about it that stimulates cuttings to root quickly, but for the generality of the plants we cultivate, the allowing favourite cuttings to remain long in such a medium, would appear to me as wise as allowing a young infant to suck nothing but a piece of pork or salmon, though old women, and sages too, will contrive at times, clandestinely, to put a piece of such things in their sweet mouths, to be conveyed thence to their tender stomachs, and that they contend, too, for their good. The continued application of the pork and the charcoal, would, in most instances, produce similar unfortunate results.

R. FISH.

To be continued.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS THAT THRIVE WELL IN POTS (Continued from page 87).

TRICHOSMA SUAVIS (Sweet T.); E. Indies.—Sepals and petals pure white; the lip is white also, with a deep yellow blotch in the centre, and a few radiating stripes of purplish-red. This is a very fragrant flower, of considerable beauty. The Indian belles admire it very much, and ornament their head-dresses with it. It is as yet very rare in this country. 84s.

Culture.—This choice plant covets a rather stronger Compost than the generality of epiphytal orchids. Of good turfy peat two-thirds, and one-third of broken pots, with charcoal and half-rotten leaf-mould in equal parts. Let the peat be used as rough as possible, in pieces about the size of a hen's egg; sift out all the fine earthy particles. This will leave the compost perfectly open and porous. Stagnant water, or soured peat, would rot the roots almost directly.

Potting.—Like all other orchids this species must be potted just when it begins to grow, and before it puts forth new roots. These in their young state are so brittle that the least touch almost will break off the young and tender ends, and so render abortive, or, at least, imperfect, the new pseudo-bulbs. This would be fatal to the chance of blooming the succeeding year. It is better, therefore, to repot early, as soon as the tendency to grow is perceived. Previously to potting, see that a goodly lot of potsherds are broken into three sizes, and all ready some time before the potting season arrives. Drain heavily for this plant, for it is impatient of too much wet. Fill the pot nearly full of the compost, then shake the plants out of the pots; cleanse thoroughly both their leaves and pseudo-bulbs; then place them in the centre of the pot, or, at least, place them so that the new shoots when made will be near the centre. Lift up the plant as the compost is filled in and around it, so as finally to leave it upon a little hillock in the centre, and press the sides down a little within the rim of the pot; this will allow the superfluous water to sink down at the sides and escape through the drainage, and thus prevent its lodging about the young growths. During the growing season keep up a brisk temperature and a moist atmosphere; being an Indian plant, it requires a strong heat and plenty of moisture, in order to assimilate the climate in our artificial treatment to something like its native country. When the new bulbs are fully formed (they should be larger than the old ones), reduce the heat and moisture, and so

induce a state of rest. With this care and attention this beautiful plant may be grown well and satisfactorily.

TRIGONIDIUM ACUTUM (Sharp-pointed T.); Demerara.—Flowers deep chocolate colour, about one inch across; leaves short and stout; pseudo-bulbs very smooth, bright green, and a medium size. Pretty, and easily grown. 21s.

T. obtusum (Blunt-petaled T.); Demerara.—Sepals and petals brownish yellow; lip short and obscure; in the centre of the flower there are two bright shining brown spots, giving the flower the appearance of being eyed. Worth cultivating on account of its free growth and long season of bloom. 15s.

Culture.—There are several more species of *Trigonidium*, but they do not possess beauty enough to render them worth the room they would occupy. The above two species are all we are acquainted with that are worth keeping. Pot them in a compost similar to the preceding genus, raise them high up above the rims of the pots, give them plenty of water at the root when growing, and abundance of moisture in the air. When at rest give but little of either water at the root or atmospheric moisture,—reduce the heat also simultaneously. No orchids are easier to grow than *Trigonidiums*, hence they are fit subjects for the amateur to try his skill and care upon.

VANDA.—This genus we have already written largely upon under the head "Plants requiring baskets," but several species might be grown successfully in pots full of holes or slits at the sides. The species that would answer with this treatment are *Vanda fusco-viridis*, *V. multiflora*, *V. Roxburghii* and its varieties, and *V. unicolor*. All these may be grown in pots well-drained and filled with open sphagnum; that is, sphagnum put into them just as it comes from the bog, only dried a little; and put in lightly, or only just pressed down firm enough to keep the plants upright when tied to a stoutish stick. The only extra care they will require, will be not to give too much water, especially during the dark days of winter.

T. APPLEBY.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS

London Floricultural Society.—After the general business of the Society had been gone through, the attention of the meeting was engrossed by the alleged charge of exhibiting other people's flowers, of which an individual had been convicted by the leading Tulip Society of the metropolis, if not of the whole kingdom. Without attempting to report the discussion which involved so serious a charge against an individual who has been conspicuous as a winner for some three or four years at various Societies, the opinion that the party, charged openly, and by name, with these practices by the *Gardeners' Journal*, was bound to proceed against the paper, or retire from the floricultural arena, was unanimous. *Chrysanthemums* were the only flowers shown; and of these there appears to be only one cultivator who raises seedlings in this country from seed saved for him in the south of France and Italy; but the sight of old favourites is refreshing. This Society has been very prudently rather backward at giving certificates of merit the present year.

The original *Chrysanthemum Society*, established at Stoke Newington, held its annual meeting on the 20th instant, the day this reaches the country readers, and if there be a hundred societies hereafter, to that society alone will the credit belong of first encouraging this noble autumnal favourite. *Chrysanthemums* will be produced, then, full six inches in diameter, and double to the centre. The *Highgate Chrysanthemum Society* will meet on the 26th instant; and as many of the best

exhibitors attend both, there will be very little difference in the show.

The following are the leading show *Chrysanthemums*, and we give the list confidently, as we live among a collection of nearly all there are in cultivation:—*Anne Salter*, canary yellow; *Campestroni*, rosy carmine; *Duke*, bluish; *Dupont de l'Eure*, light carmine and orange; *Golden Cluster*, rich golden yellow; *Goliath*, white; *Jenny Lind*, rosy buff, changing to sulphur; *Lysius*, reddish salmon; *Madame Poggi*, crimson chesnut; *Princess Marie*, rosy lilac; *Pio Nino*, Indian red with gold tips; *Queen of England*, splendid bluish white; *Temple of Solomon*, bright yellow; *Two-coloured-incurved*, salmon and orange; *The Wurden*, deep orange. The *Pompon* varieties have very small flowers, and are best shown as plants in pots; of these there have been an immense number imported, but those which can be recommended are comprised in the following; they are also called Lilliputian varieties:—*Criterion*, golden yellow tinted rose; *Daphnis*, carmine purple; *Elise Meillez*, deep rose; *Elegantissime*, yellow and rosy carmine; *Gil Blas*, carmine red; *Henriette Lebois*, rose and white; *La Gitana*, white and rose; *La Fiance*, white; *La Sapajou*, bronze, orange, and cinnamon; *Modèle*, bluish; *Madame Lemachez*, lilac; *Pouledetto*, rose and white centre.

There is yet another class of flowers generally abandoned by florists, as stand flowers, but show grand as plants, we mean the quilled kinds, viz.:—*Fleur de Marie*, fine white; *Glück*, golden yellow; *Madame Godereau*, white and lilac; *Nancy de Sermot*, white, inside of quills tinged yellow; *Reine Marguerite*, white; *Sulphurea Palida*, sulphur colour.

The vast improvements that have been made since the flower was adopted for exhibition in single blooms like Dahlias, have left many old varieties in the shade, and its culture is becoming general. To obtain the blooms of a large size, only one flower is permitted on a shoot; the plants are grown in strong soil, and as they begin to bloom, they are moistened with manure-water.

We have received three *Calceolarias*. Shrubby habit, but in a bad state, of which one (yellow) looks like *rugosa*, a fine bedding plant; one has no flower, and a third with a brownish-orange. If it be of the same dwarf habit, it is a good contrast; but we have half-a-dozen of much the same character, and only different from each other in name. The *Geraniums* are not good enough to grow, and have been superseded long ago, if they ever were named. A sprig of an Acacia-like plant (No. 6) beats us, if it be not one.

We have given elsewhere our opinion on the Dahlias coming out, but have no objection to repeating them here by and by. *O. T.*, of Manchester, may try W. 28 next year, but the other six are hopeless. It is, however, impossible to say any thing to the flowers of seedlings which have escaped the frost and only blooming now.

Mr. Green's *Scarlet King* has been exhibited frequently, and had no certificate; but it has been noted down by every grower for cultivation. How is this? We only speak of London shows. The very same people who thought it not worth a certificate, think it worth paying half-a-guinea for. Mr. Green might, as a non-member, be entitled to show seedlings; and there are people ill-natured enough to say that had he sent his subscription as a member, he would have had different treatment. We cannot tell Mr. Wood who will let it out, but Mr. Green, as we see by an advertisement, has sold his stock.

A correspondent wishes to know our opinion of three *Fuchsias*, all red. The sepals and corolla the same colour. It is a pity raisers do not attend to the properties a little. A *Fuchsia* without a distinct contrast of colour cannot be good. If the colour were very novel it might be curious, but it could not be good.

Dundee Pansies. All too deep in the border, and too

small in the white field. It is just possible that No. 5 may come better in the spring; the others may be thrown away.

The Properties of the *Chrysanthemum* may be less understood than those of many other flowers, simply because there are so many varieties in the forms of the petals, so many different constructions of the flower. But judges have to bear one main feature in mind, the form of the flower as a whole. This should be half a ball, and the surface should have no vacancies; consequently, whether this half a ball, with a close surface, be formed of reflexed close petals like *Annie Salter*, or by curled petals like *Goliath*, is not of half the consequence that it is to find vacancies between the petals. An open or loose flower is not to be tolerated; but the general features which must decide the fate of a flower, must be the form and closeness of the surface. A flower will then be round in the outline, as well as on the face; and it is only when they are equal in this respect that we can recognise the advantage of size, which must not captivate us to prefer large loose blooms to small compact ones.

As we have strongly recommended *June and July Shows of Roses* to be with single blooms only, like a dahlia, on account of the noble flowers which may be had at that period, we may mention a few which from their size and form are calculated for that service; but we must recommend those who grow them for show in that manner, to grow them in a quarter on which the main features of the garden do not depend, because, as the majority of them are, strictly speaking, summer roses, they do not flower after July:—

Caroline de Sansel, pale flesh; *General Negrier*, rosy lilac; *Pius IX.*, purple crimson; *Madame Guillott*, deep pink; *Crimson Perpetual*, rich crimson; *Mogador*, crimson and purple; *Amandine*, bluish; *Comte de Montalivet*, carmine; *Comte de Paris*, crimson shaded; *Geant des Batailles*, bright scarlet crimson; *Jaques Lafitte*, brilliant rose colour; *La Reine*, glossy pink; *l'Inflexible*, pink and lilac; *Marquess of Ailsa*, carmine; *Reine des Fleurs*, shaded pink; *Standard of Marengo*, shaded crimson; *Acidalie*, white; *William the Conqueror*, pale rose; *Cloth of Gold*, pale yellow; *Madame Breen*, bright rose; *Comte de Paris*, bluish; *Blanche Fleur*, French white; *Boula de Nanteuil*, purple crimson; *Comte Plater*, cream, fawn centre; *Chenedole*, vivid crimson; *Charles Duval*, bright rose; *Comte Boubert*, deep rose; *Coupe d'Hebe*, glossy pink; *D'Aguesseau*, bright crimson; *Eugenie Dessauzais*, pink and bluish; *Frederick II.*, deep crimson; *Henri Barbet*, pink; *Ohl*, rich crimson; *Éillet parfait*, striped red and rose; *Paul Perras*, shaded rose; *Princess Clementine*, white; *Striped Unique*, white and pink; *Triomphe de Jausens*, crimson; *Village Maid*, purple and white; *Comtesse de Segur*, pale flesh; *Brennus*, carmine; *Leopold d'Beaufremont*, pink; *Auguste*, glossy pink; *Blanch de Beaulieu*, flesh and pink; *Louise Peyronny*, pink; *Madame Rivers*, flesh; *William Grif fiths*, bright lilac. From these anybody might challenge all the rest of the Roses for single blooms.

FLORISTS' FLOWERS CULTURE.

THE RANUNCULUS—(Continued from page 102).

PROPAGATION. BY SEED.—In all the various pursuits that men follow, there are always to be found some who are anxious to distinguish themselves above their fellows, by producing something superior in the particular business or pursuit by which they gain profit, or pleasure, or honour. The same laudable spirit actuates even the quiet florist. Year after year, with praiseworthy perseverance, he sows his carefully-chosen seed, watches its first appearance above ground, waters the plants, transplants them into fresh soil, and tends them daily and hourly till the anxiously-looked-for variety blossoms;

when he either succeeds in producing a better variety, and enjoys the pleasure of being the first in that particular kind, till a superior one is obtained either by himself or some one else, or he fails, and then has to begin again. By such persevering efforts the race of the *Ranunculus* has been brought to the perfection it has now attained, and, no doubt, may still be greatly improved by continued attention.

Of course the seed must be saved from flowers likely to improve the breed; and as perfectly double flowers, on account of the parts of fructification being all converted into flower-leaves, do not produce seeds, they must be looked for in semi-double flowers. Form is the first property to attend to. The flower should be as nearly half-round as possible—that is, the shape of a round ball cut in two, and flattened at the top; the colours should be bright and distinct, and the flower-stems stout enough to bear up the blooms without bending. When the seed is ripe, gather it immediately, or the wind will soon disperse it. Keep gathering it as it ripens; for it does not ripen altogether. Lay it upon a sheet of paper in a room where the sun will shine upon it for an hour or two in the forenoon. When it is perfectly dry, wrap it up in paper, and place it in a drawer in a dry, cool room till wanted.

Sowing.—Early in spring prepare a compost of strong loam and leaf-mould; mix it well, and fill some boxes or seed-pans, well drained, very nearly full; sift a portion of it, and place a thin layer over the rough compost, press it very gently down, and it is ready for the seed. To be certain that the seed is sown equally and thinly, mix it with some fine soil, rubbing the seed and the soil well together till the seeds are separated from each other. Sow this mixture upon the soil prepared for it in the boxes or shallow pans; then press it down level, and with a fine sieve sift some of the compost very thinly but evenly over it, the thickness of a shilling will be quite sufficient; then, with a watering-pot, the nozzle of which has the finest holes, give a gentle watering—this must be carefully done or the seed may be washed away. Place the seed-pans under glass in a cold frame or pit, or, if that convenience is not come-atable, place them in front of a low wall facing the east, and contrive a covering or shelter of some kind, to protect them from heavy showers. Whenever the soil appears dry, give water with the fine-rosed water-pot, and in strong sunshine place a shade over it till it appears above ground, and has attained a leaf or two to each plant. In this stage, great care and attention is necessary to protect the young and tender plants from becoming the prey of some prowling slug or wood-louse. In a single night, dozens of plants, at this tender age, might be eaten up and destroyed. Search well about where the boxes or seed-pans stand, and even lift them up, and examine under them, to see if any of these devourers have crept there to hide themselves till the darkness prevails, and allows them to come out seeking what they may devour. Continue this attention till the leaves begin to decay, and then cease watering, but keep them clear of weeds. These should be carefully plucked up whilst very young, because, if allowed to attain any strength, in pulling them up, the young roots of the *Ranunculus* might be plucked up with the weed. When the leaves are all decayed, and winter is approaching, place them in some very cool place where no rain can fall upon them, and keep them here till spring. About the middle of April bring them out, and give them a good watering. Sift over the soil a thin layer of fresh compost, and repeat the care and attention with regard to watering, looking after insects, and keeping clear of weeds, as in the previous season. This second year, when the leaves fail, and the plants are at rest, the tubers will have attained some size. They should now be taken out of the soil, and the surest way to

accomplish this without losing any roots, is to sift the upper part of the soil through a fine sieve, fine enough to catch even the smallest roots. Store them away in a cool, dry room, and in the spring plant them out, and manage them like the named varieties. When they flower, select the superior blooms, name and mark them, and submit them to competent judges to determine their merit. Inferior varieties may be planted in the common flower-border to bloom, and may be left in the ground to perish.

T. APPELEY.

THE KITCHEN-GARDEN.

POTATOES.—It is not without some hesitation that we venture to make a few remarks on this esculent, alike the favourite of the prince and the peasant, and we are the more disheartened at the task, by a knowledge of the conflicting opinions already abroad regarding it—so numerous are these, that it would be no easy matter to suggest anything original as to the cause or prevention of that disease, which has both puzzled the man of science and the man of experience. But setting aside that perplexing question, let us see what can be done to render the Potato as productive as possible, and, at the same time, avoid, if we can, the baneful effects of disease. We believe, that amongst the various opinions abroad, there is one in which most people coincide, and that is, the fact of “so many of the early kinds of Potatoes escaping,” while the late ones fell a prey to that inexplicable complaint; indeed, this has been so many times confirmed and proved, that it is not unlikely some of our late kinds may become absolutely lost to us, though we hope to have them replaced by healthier and earlier varieties. But to our purpose. We have said every one admits the propriety of planting early kinds; “we say so too;” and we go a little further and say, try and get these to come in as EARLY as possible, but how is that to be done—we suppose some one will be asking? Plant now, we say, if your land be at all favourable, and you will not repent it. We believe it was the Editor of this work who, some years ago, so strongly advocated autumn planting, and though at the time much opposed, there can be no question of its utility—we know that a considerable breadth was so planted last autumn, and we have no doubt but there will be the same this. Mr. Cuthill has shown in his useful pamphlet how much the Potato loses by the too common way in which it is treated in winter, and though his mode differs from the one we recommend, yet there are some points in common. Now, supposing we had pitched on a piece of ground intended for Potatoes next year, and that ground of a tolerably dry character, we would at once plant it on what is called the ridge system. We have never seen any done so in the neighbourhood of London, but it certainly deserves a trial. After the ground is dry, drills are drawn in the usual way with the hoe, and the potatoes planted in that drill not very deep, and the proper width apart. Afterwards let a man take a spade, and cast the soil from between the drills over them, in a ridge-like manner, laying it up as roughly as possible, and leaving the furrow part rough also, which ought not to be walked in afterwards; in fact, the way to do it is to walk backwards, the same as in digging. Of course, care must be taken not to displace the sets; when done it will resemble ground ridged for the winter, which in fact it is, only there is the crop planted. By lying in this way it gets all the benefits of the frosts, without the soddening rains, and in spring a part of the ridge may be worked down with a fork, but it is better not to be too early with that work, as late frosts are apt to catch the tops when so prematurely exposed, but a certain working down and amongst, is beneficial to the crop, besides giving a

freshened appearance to the ground. We need hardly say that great care ought to be taken in selecting the seed the medium sized—those a little below that are generally used; and if the kind be a large free-growing one, do not pinch them for room, and we have no doubt but you will be rewarded. We have adopted the above plan early in spring in years gone by, with the best success, even on ground too tenacious to be dug by anything but the fork; in fact, it is ground of this description that benefits so much by so extensive a surface exposed to the action of the atmosphere, but all soils derive a benefit by it.

BEANS.—Where these are wanted early it is now full time to sow them. Many people plant them at once where they are to remain, and we see no reason for objecting to that plan; but as it sometimes happens that the border or square we intend for them is under crop, we content ourselves by sowing a quantity of seed, very thick, on a nice piece of soil, in some sheltered corner, and put hand-lights over them. They come up, and grow away very well in such a place, and bear transplanting in February pretty well; besides the Lettuce, Endive, or other crop that occupied their intended site is gone then, and when treated so we have found them come in quite as early as those sown where they are to stand. Beans, like Peas, do not endure a hard winter, when they are of a large size—they become what is termed “black-in-the-leg,” and often wither and die off. The old *Mazagan* is the best for winter use, but there are some newer kinds said to be larger, and equally hardy. One we have seen, called “Marshall’s Dwarf Prolific,” which seemed a good, useful Bean, but we have not tried it.

RHUBARB must at once be got ready to force if not done before, but this vegetable, like Sea-kale, is very unwilling to start before Christmas, unless it be taken up and put in some warm place. For that purpose it is very accommodating, and we have seen it do very well in a corner of the stock-hole near to the fire, but, of course, it would be finer if better treated. At all events we

advise our amateur friends to try some other way than forcing it in the ground until after the turn of the year. We have sometimes taken up old plants with balls almost a barrow-load each, and planted them on the store-heap of leaves, adding some more soil, and covering them up with litter for a time. The steady, gentle heat of the leaves soon reaches them, and they grow away steadily and well, when we remove the litter, and place a frame over them, and we soon have abundance of excellent Rhubarb of better flavour than when blanched with dung; while we have often been disappointed in endeavouring to force it in the open ground in the early part of the season—later on, it does very well so, and perhaps produces more than by lifting up.

CHICORY.—A few roots of this may be put in a tub or box, and placed in some dark cellar, or other suitable place, but the light should not be so entirely excluded here as with Sea-kale, as the vitality of the plant will not be a match for the decaying influences by which it is surrounded, and consequently the leaves or shoots will damp off at the points; but it must not have too much light, otherwise it will be too bitter for use. In very severe winters this salad is in great demand, but on ordinary occasions it is less thought of than Lettuce and Endive, to which it is allied.

SUNDRIES.—Make good all defects in plantations of *Cabbage*, *Cauliflower*, *Lettuce*, &c., and cut *Brocoli* as it arrives at perfection. Examine the stores of *Potatoes*, *Onions*, *Carrots*, &c., and if green *Mint* be wanted at Christmas, let some good, healthy plants be taken up, potted, and set in some warm place. Take up a quantity of *Jerusalem Artichokes* for present supply, in case of hard weather, but the great bulk had better remain in the ground till February. Partially cover with litter the stems of *Globe Artichokes* all around, leaving the centre open. This season the dry weather in September ripened them off, so that nothing but very young shoots was left. Keep a watchful eye over the last sown *Lettuce* and *Cauliflower*, and let neatness and order prevail everywhere. J. R.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of “My Flowers,” &c.

I AM now going to amuse, and I hope, instruct my younger readers, by giving them a sketch from the life of a young person, which will show them how sturdy and irresistible is *truth* under every difficulty, how surely it stands upright, whatever may seem against it, and how certainly it will be brought to light in God’s good time. Children, and some even of larger growth, are often led to tell untruths to screen themselves from blame—they are frightened at what they have done, and are more in dread of the angry word or blow from man, than of the wrath and punishment of God. This causes them to lose their character for truth, and no one of course can trust their word again; so that when they are really speaking honest truth, no one can or dares believe them, and part of the suffering caused by sin begins.

James J— is the son of highly respectable parents in humble life. His father began the world as helper in a garden and stable; but his steadiness raised him by degrees to the situation of in-door servant, and he has continued ever since in the same family—the trusty right-hand man of the lady with whom he has lived from his youth. His spare time is devoted to the culture of flowers, although he is confined to the slip of ground behind the house in which his mistress now resides; but his fondness for them is such, that it overcomes every disadvantage, and the choice and beautiful plants he blooms, prove how much may be done by energy and perseverance.

When James was a little fellow of about ten years old, his mother heard of a place she thought he could fill, in a

family where he would be watched and cared for. It was to carry a letter bag, clean knives and shoes, and do as he was bid—he would be at home in the evenings, and she would see how her child was going on. He made his first appearance in a brown pinafore, a cap and tassel, and a very nice, open-looking child he was. He was a quiet, steady little fellow, and went on very well, of course needing frequent reproof and correction, but always speaking the truth, and seeming anxious to do all he could to please.

He had been two or three years in this place, when an event occurred to him, which proved of great consequence, as it confirmed the good opinion entertained of him, and showed him very plainly, young as he was, that when we do right, we are sure to be cleared, sooner or later, even in the eyes of men. A mysterious death took place among some ducks: one of them died without any apparent reason. It was in good condition, had shown no symptom of disease, in fact it had been in perfect health, until one unhappy day it was found in the stable dead. Inquiries were set on foot, no one knew anything of it, no one had touched the duck, or noticed anything about it. The eyes of one or two of the household turned suspiciously upon little James. He might have done the deed. The bright tears coursed down his cheeks as he earnestly protested his innocence; but things went against him. His mistress stood up for him, because he had never been known to tell a lie. Think, my young readers, what a protection it was to little James, that he had never been known to tell a lie! Still, he had up-hill work, because the ducks were somewhat under his charge; and

although no one could say he *had* stoned the creature to death, yet no one could positively say he had *not*. "Let the duck be feathered," his mistress at last said. It was done; and several red marks appeared on the body, evidently proving that the duck had died a violent death. "There," said the chief accuser, "there, ma'am, is the proof. See how the stones have wounded it; it has been stoned to death." The fate of poor little James hung by a slender thread. His mistress looked closely at them, and then said, "Those wounds are not from stones, but from the teeth of a dog." Impossible! there was not a dog about the place. How could it be? The poor duck had clearly been driven and stoned to death.

A further and closer inquiry was made, until the matter reached a man who had been for some days thrashing in the barn. He said he remembered seeing a gentleman's servant coming away from the house, followed by a large dog, and that the dog flew at the ducks and worried them, but was called off before he had done any further mischief. This fact recalled to the minds of the family the circumstance of a message having been brought by a friend's servant the very day before the duck was found dead, and that he had been accompanied by a dog.

It has been said that truth lies at the bottom of a well; and the difficulty there sometimes is in reaching it, in finding it out, and bringing it to light, may be likened to diving into a deep well to bring something up that has been dropped into it. If man's unassisted reason only was to be trusted, we might be ready to despair in many cases; but the God of Truth reigns over all the world; and His infinite wisdom and power can do all things. Nothing is hid from His all-seeing eye—innocence as well as guilt stands confessed before Him, and in His good time will be brought surely to light. In the case of little children the good providence of God is as fully concerned as in that of men; they are just as much the objects of His tender care as their parents are; and, therefore, children may be sure that in all their little simple affairs their Heavenly Father watches over them, and takes charge of them. Poor little James was in a "great strait" in the matter of the duck; but God knew his innocence, and made it appear. No eye on earth saw the dog worry the duck, except that of the man in the barn; but one evidence was enough to prove his innocence, and that evidence God had appointed. He has declared to us in His own Word, "and He shall bring forth thy righteousness as the light, and thy judgment as the noon-day." It does not always happen that things are understood or discovered quite so soon as in this case; many persons have to wait under unjust suspicion for many years, but what the Lord has pledged Himself to do, that He will perform when the fittest time comes, and none shall turn Him aside. We are told to "rest in the Lord, and wait patiently for him." Let us do this, for He is our confidence and strength.

Now, though some of us may be old, and wise, and great, we are all helpless as children without the help of God. Our worldly affairs may be of a great deal more importance and weight than a dead duck, but still we may all learn a lesson from little James. Let us cleave closely to truth even in the smallest matters—not because it is the best policy, but because God "desireth truth in the inward parts;" and what He has enjoined, He will honour and bless. Let "both young men and maidens, old men and children," approve themselves "unto God" in all their works and ways, and then they may safely trust Him for making them clear in the sight of men.

BEES.

PERMIT me here to tender my sincere thanks to your correspondent, "R.," for his kind and flattering mention of my papers, my book, and myself, in your 161st Number. It is encouraging to receive an occasional notice, like this, of the favourable estimation of one's labours by those for whose benefit and amusement we write; and the more so, when one is venturing (if I may use a common metaphor) into an unexplored ocean, which is too often exposed to the winds and storms of prejudice, and the currents and eddies of something worse.

Your correspondent requests my opinion as to his chance of success in forming swarms artificially by *fumigation*. His proposed plan is, to say the least, ingenious, but I should

be disposed to doubt its probable success, and for the following reasons:—Because, first, the bees do not, when fumigated, crowd between two combs only; wherever they happen to be in the hive, as soon as the fumes of the narcotic reach them, they make an *upward* movement; so that, if the top of the hive were lifted off, they would be found congregated in crowds in the spaces between *every one of the combs*, and not, as I said above, between *two combs only*. I have several times fumigated bar-hives this year, and on lifting the moveable top I have always found those which did not fall congregated in separate detachments. Now, it is evident that (supposing the bees would ascend at all through a hole at the top of their hive) only those would ascend which happened to be among those combs which communicated directly with the hole, and who shall say whether the queen is likely to be there or not? In bar-hives, if the top was removed, this difficulty would not exist, because the space between every comb would communicate directly throughout its whole length (if every comb was properly attached to its bar) with the upper hive. But here, second, I see another difficulty, viz., that the smoke of the narcotic, having always, by a known law, a tendency to rise, would soon fill the upper hive with its fumes, as well as the lower, and then it remains to be seen whether the bees would attempt to climb up its sides, in the hope of escaping its poisonous breath. But I should be sorry to stand in the way of a trial of the plan; it might succeed, and certainly there is no harm in trying.

Your correspondent seems to long for "*a more easy method*" of forming artificial swarms. I only wish he could be present when I am operating on one of my stocks in May; I could, I think, convince him that the *driving* process is quite as simple as he could wish. I allow that when hives are *roughly* handled, there is danger of the combs becoming disengaged, especially in the case of swarms of a former season, in which the comb is still fresh and delicate; but I think he has greatly overrated the danger. Perhaps I have been the unintentional cause of inspiring him with a fear as to its general success, by the incident recounted in appendix F of the "English Beekeeper;" and yet, though I have formed twelve or fourteen swarms in this way, in no case, save in the one instance there recorded, have I found the combs break, even in young stocks. The fact is, the process of driving, to make swarms artificially, has been unreasonably represented as *difficult*. Till practice gave me a familiarity with the habits of bees, I once thought it such myself; and I well remember the fright and fuss I was in on the first occasion of my trying it. *Coolness and courage are the only requisites*, and if people would but have faith in the affirmation of the experienced, they would, with as little fear, turn up a hive of bees, as put their fingers into a box of confectionary. In my own practice I have simplified the process greatly. All the implements I now use are a pail, an empty hive (a little larger in diameter, if possible, than the hive upon which I am going to operate, so as partly to slip over it), and a cane, or flexible stick, not less than two feet long; the operation, too, is performed without any assistance. First, I take up the full hive (having some hours, or the evening before, lifted it an inch from the stand) and gently turn it upside down in the pail; I next, very deliberately and carefully, fix the empty hive over the other, holding it in its position with one hand, while with the other I rap quickly and lightly against the sides of the lower hive; in a very few minutes the bees are up, queen and all, in the upper hive, which is shortly taken off and put on the old stand, while the other is turned up on a board, the entrance being now stopped up, and removed to another stand; there it remains till the third morning following, when the bees are released. The process in this way is almost too simple to be interesting. You may be as deliberate and cool as you like; the bees are so startled at the sudden admission of light, as scarcely to move at all, and even when the tapping begins, though their entrance-hole may be open, they rarely attempt to fly. Instead of waiting till after breakfast to conduct this business, I now prefer doing it in the early morning, about five or six o'clock, A.M., if the weather is fine and mild; thus no time is lost.

But, if this plan is still thought difficult or dangerous, will the following be thought easier? Turn up a strong hive, and cut or break off from one of the combs a good piece, say five inches square, containing both eggs and young

brood; lay it gently aside; then replace the old hive on its board, and remove board and all to a new stand in as distant a part of the apiary as possible. Next adjust the piece of brood-comb in a large glass, and set it over the hole in the new hive intended for the swarm now making; or else put it inside the hive itself, resting it against one of the sides on the board; now put this hive on the old stand, and the swarm is made; for it will be joined by a throng of bees from the old hive, as well as by all the bees which were in the fields at the time the old hive was removed. These, although somewhat disturbed at first, will soon become reconciled to their change of circumstances, and, finding some brood-comb in the empty hive, will cherish it and rear up a queen. I do not think any process of artificial swarming could well be more simple than this.

With respect to the latter part of your correspondent's interesting paper, I may say that, notwithstanding the favourable reports of the north aspect method of wintering bees, to which Mr. Payne also has alluded, though I was once very much inclined to favour it, I am now of "R's" opinion, that more or less of a southern aspect is best for bees, if you can only keep off the sun effectually from them. The jacket used by your correspondent, if it be not too hot in summer, would seem to answer the purpose very well. My practice is to cover my hives first with a milk-pan, and then with a thick hackle also, worked on a hoop which rests on the rim of the pan. The straw of the hackle, moreover, is made long enough to form a broadly-overhanging eave, which effectually shades the hive, entrance and all, from the rays of the sun. Not only so—coolness both in summer and winter is obtained, and all the other advantages which your correspondent enumerates, such as a small consumption of food, early breeding, and consequently early swarms, to all which a south aspect undoubtedly conduces. I do not doubt that they will do very well in a north aspect, but I must say I think they must do better, if well protected, in a southern position. Yet Mr. Payne (see THE COTTAGE GARDENER, vol. vi., page 401) has advanced strong facts, which decidedly favour the location of beehives in a north aspect. But time will set us right on this point.—A COUNTRY CURATE.

TO CORRESPONDENTS.

FLOWER GARDEN (C. S., 3rd Oct.).—Your plan is most beautiful and original. Is it your own composition, altered a little, from part of a ceiling in Rome? We have seen something like it. Of course you mean to put *Louis Philippe* (Verbena) in 4, and shade both ways right and left of it, but *Emma* would do better; 12 would be better with *Kentish Hero* (Calceolaria) than with either *Viscosissima* or *Ampelicaulis*, both too bright for that situation; 13, *Diadematum rubescens*, certainly; *Touchstone* is superseded by *Rouge et Noir*. Both 16 should be the same sort, or same colour and height in two sorts, but *Crimson Nosegay* we never heard of before. *Scarlet Nosegay* or *Pink Nosegay* would do. Low white for 17, variegated *Sweet Alyssum* is the best. *Diadematum* and *Unique* (Geraniums) will not do mixed; nor would *Diadematum* make a proper edge for the *Unique*. *Mangle's Variegated* is a good edging to *Unique*, and *Golden Chain* the best of all, if *Unique* was trained down.

DR. LINGARD A GARDENER (W. K. Wakefield).—In a memoir of the late Dr. Lingard, published in *Bentley's Miscellany*, the following allusion is made to a trait in the historian's character:—"The house in which Dr. Lingard lived for so many years was a most unpretending residence, having a small chapel behind it, a door of communication opening into it from the house. In his garden, which was a long strip taken off a small grass field, he passed much of his time. It was the chief recreation of his leisure to attend to his fruit trees, which were trained and pruned by his own hand. His garden was the burial-place of his favourites—his spaniel *Etna*, his cat, his tortoise, and his horse, which last was laid beneath the shade of a flourishing oak tree, reared from an acorn brought by himself from the shores of the lake of Thraümene, in 1817. Over the grave of *Etna*, his faithful companion of many years, the doctor, it is said, has been seen to stand until his eyes were suffused with tears, and he would exclaim, 'Ah, poor Etty!' No anecdotes are trivial when, as in this instance, they display so clearly the nature of a man."

NEW QUICKNET FENCES (K.).—Young thorns, or quick, planted last year, "uncut, according to the modern way of planting," are now, and the sooner the better, fit to be cut down; cut them just four inches from the ground. It is in the cutting of a new or young hedge that so many planters fail in getting up a good close fence; they imagine that, by leaving a foot or more uncut, the hedge will get up faster, which is quite a wrong idea. October is the best time to cut your hedge for the next seven years, and during that time let not a twig of it be touched in the summer. It is only when a thorn-hedge is up to the size required that it is right to clip it in June.

BERGMANSIA BANGUINEA (S. I. L.).—By all means it must be most carefully protected from frost. The young wood is much more tender than that of a *Scarlet Geranium*. If your plant is not too large, and you wish it preserved as it is, the best way is to take it up for the winter, and plant it out again next season; but no matter how old or hard the wood gets, it will not stand frost.

FROSTED GERANIUMS (C. E.).—They must be cut close down, certainly, and lower than the frost touched them. *Tulips* and *Hyacinths*, and all

spring bulbs, may be planted in rustic vases now; but it is better to cover the soil with moss or hay, &c., until the leaves appear in the spring. Not but that they will stand the frost, but they come better if thus protected.

CELERY GROWING (A Lancashire Subscriber).—You will have seen what has been said upon earthing-up this vegetable at pp. 39 and 106, so as to protect it from grubs and decay. It would be unreasonable to enter now upon other particulars of Celery culture, but it shall be attended to in due season. *Celery* is an Italian name. It is the cultivated form or variety of the *Apium graveolens*. In Turner's Herbal it is stated that the wild species was known as "*Smallage* or *Marche*," by the latter name, Marsh being probably intended, in conformity with the Latin name *Paludarium*, which means Marsh Parsley.

POLMAISE HEATING (S. of C.).—We have sent your letter to the party you mention.

PHLOX, &c. (A Young Amateur).—The *Scarlet Lobelia* requires protection in winter. The *Phlox Eclipse* is hardy. You do not seem to understand that "a Pillar Rose" is one trained round a pillar.

GREENHOUSE PLANTS IN A ROOM (Enquirer).—Your room has a large window to the north-east. If you had mentioned what your plants were we should have been more able to tell you whether you can keep them there. Many half-hardy plants could be kept there even without artificial heat, as frost might be excluded. The aspect is so bad that we could scarcely recommend you to build a flue, if you have good hard-wooded plants, as they would suffer from want of light, unless close to the window. If you raised your loose frame high enough, if even on such earth walls as spoken of lately, and damp and frost were excluded, you could there keep your best plants more safely. Give us more definite statements, and we will endeavour further to serve you.

TORRENIA (A Constant Reader).—We presume you mean *T. Asiatica*. The treatment of this you will find in a former communication from Mr. Fish, so far as greenhouse culture is concerned. He has kept it well over the winter, in a temperature not much below 45°, at the coldest. The safest plan is to strike cuttings in August or September. Pot off, and place several of these pots under a hand-light, near the front glass, which will keep the plants more uniform in temperature and moisture. Many plants a little tender may be kept this way. Old plants kept in the warmest end of a greenhouse, will lose a great many of their leaves, and the others may get a little yellowish, but in March and April they will begin to grow afresh, and present such masses of bloom, as to be unequalled either by younger plants, or old ones kept in a stove. The check in winter is followed by flowering more than growing in the following summer.

CURE FOR VINE-BLEEDING (Rev. R. M.).—We have found charring the wound with a red-hot iron, and then rubbing in a putty made of quick-lime and tallow, effectually to stop the bleeding. Since the above was written, we have most opportunely received the following from Mr. J. Weeks, Nurseryman, King's Road, Chelsea:—"Roman cement applied in the powdered dry state, is an excellent remedy for staying the bleeding of Grape-vines, and for bruises and wounds of plants generally. Also for healing the incised part of milky and sappy cuttings, causing them rapidly to, callous, and emit roots." We consider this a valuable discovery, and we can understand how the cement acts, as it has the property of becoming hard under water.

WHITE DORKING FOWLS.—Parties requiring these may address a letter to A. B., Post-office, Amphil. The party is an amateur.

CONCRETE WALKS (An Amateur).—The number you require is our 140th.

LIQUID MANURE (E. D. B.).—This is the worst of all seasons to employ liquid manure. If applied to growing crops, such as Broccoli, it renders them more luxuriant and more liable to be destroyed by frost; and if you put it upon vacant ground its fertilizing qualities will be dissipated during the winter. On no account put it on your potato ground. An answer to your other query next week.

PIC MANAGEMENT (W. H. W.).—Your proffered essay on this, if founded on your own experience, will be very acceptable; but your paper now before us we must decline inserting. It is true there is little nourishment in tea, but it is equally true that it "cheers without inebriating;" and it is a valuable consequence that the man who is found regularly at his tea-table is rarely found at the table of the tap-room.

BRITISH POMOLOGICAL (H. M. Bristol).—The first division of Mr. Hogg's *British Pomology* will be finished on the first of December. It contains the *Apple* complete in one volume. The second division will contain the *Pear*; and the third division the *Peach*, *Nectarine*, *Apricot*, and minor fruits. It will occupy altogether about twenty parts.

NAMES OF APPLES (J. S. G.).—No. 3, Norfolk Beefing; 5, Brad-dick's Nonpareil; 6, Pinner Seedling; 9, Decayed; 10, Yellow Ingestrie; 12, Broadend; 13, Northern Greening; 14, Yorkshire Greening; 15, Margil. The others are unknown, or are in such a state that they cannot be identified.

GLADIOLUS, &c. (A Novice).—It is now high time to plant your *Gladiolus byzantinus*, and you need not remove the roots again for three years, unless you like. Lists of everything you want, and more to the bargain, will be given in succession this winter in the Flower Garden department; and all you need is already scattered over our former volumes.

COCHIN-CHINA FOWLS.—We have a letter to say that these may be obtained by addressing either M. B., Park Gate, Great Bardfield, Essex, or Mr. Roberts, Bank-street, Bishop's Waltham, Hants.

DOUBLE YELLOW HOLLYHOCK.—Any person requiring seed of this may have it by enclosing a stamped envelope, with his address, to Amateur, Post-office, Oxford; and any one sending seeds of another variety (in exchange) will confer a favour.

ENOTHERA CARPATICA—blue or white.—Can any one say where these can be purchased?

BEES (R. A.).—We believe that none of the London hive-dealers undertake to supply bees; and, even if they did, sending by rail at this time would be ruinous. The common Filbert will bear smoke as well as anything, and forms also a good shade.

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WEEKLY CALENDAR.

M D	W D	NOV. 27—DEC. 5, 1851.	WEATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
27	Tu	Anniversary of Botanical Society.	29.904—29.591	44—26	N.	0.01	40 a. 7	56 a. 3	8 4	4	12 17	331
28	F	Elm leafless.	30.302—30.139	41—21	N.E.	—	41	55	9 10	5	11 57	332
29	S	Song Thrush sings again.	30.314—30.215	37—19	E.	0.01	42	54	10 17	6	11 36	333
30	Su	ADVENT SUNDAY. ST. ANDREW.	30.146—30.108	37—31	N.E.	—	44	53	11 23	7	11 14	334
1	M	Grey Plover goes.	30.192—30.133	41—34	S.E.	—	41	51	12 00	8	10 52	335
2	Tu	Pipistrelle Bat last seen.	30.256—30.227	47—37	S.	—	47	52	0 29	9	10 30	336
3	W	Pin-tailed Duck comes.	30.121—30.081	48—26	S.	—	48	52	1 34	10	10 6	337

At a time when we were unknown, and encouragement was valuable, when we were striving for success, and even slight assistance was sustaining, DR. PATRICK NEILL, without solicitation, and when we were almost ignorant of his existence, cheered us to pursue the course on which we had started, and gave the aid that was then so welcome. On the 5th of last September, and in the 75th year of his life, he rested from his labours, and we felt, when we read the announcement, that we had one friend less in the world. If we had yielded to the promptings of feeling, we should have published our tribute of praise, and have gathered together at once, such a cairn as was within our power to raise to his memory, but we know of friends who were more intimate with his ways and merits than ourselves, and we hoped to obtain from them a worthier record, nor have we been disappointed. Two of them have given us such coincident sketches, and so characteristic, that they are evidences of each other's truthfulness. We will only preface them by saying that we believe Dr. Neill was born in Edinburgh, and was of the same occupation as that pursued by his father.

"Dr. Neill was by profession a printer, his office, one of the oldest in Edinburgh, being in one of those ancient narrow closes or alleys, which descend from the High-street to the Cowgate, in that city. Latterly, his business was conducted chiefly by a partner, and the Doctor devoted his time principally to literary pursuits, in connexion with his favourite study of horticulture. Essentially a tradesman, yet the Doctor was a most gentlemanly personage, and exemplified in his life, what may be done in the way of uniting of business with literature. The Doctor was several times a member of the civic corporation of Edinburgh, and was noted for his placid temperament and conservative views. Usually sagacious, he was also a little odd in some things. For old-fashioned abuses he had a sort of veneration; a gentle retiringness of character, perhaps, disposing him to fear changes, even seemingly for the better. The Doctor lived most of his life in a curious out-of-the-way house within a garden at Canon Mills, a suburb of the New Town of Edinburgh, and here he amused himself with his horticultural operations, and two or three domestic pets, such as a venerable gull, which was allowed the range of the inclosure. The Doctor was a bachelor, and scrupulous in personal neatness. He wore a well-brushed brown wig; his face was always as if fresh shaven from ear to ear; he firmly adhered to the white cambric cravat of past times; and in walking, used a gold-headed cane of the right old sort. In truth, the Doctor was a "character," but an amiable one. He was a fine relic of the old gentleman, neat, courteous, and conservative, with that degree of enthusiasm in pursuing his favourite study of horticulture, which placed him above the ordinary stamp. At the period of his death, the business of 'Neill and Co., printers and type-founders,' was one of the most respectable in Edinburgh."

Such is the tribute of one friend, and that of the second is as follows:—"I had the privilege of knowing Dr. Neill personally, and a great privilege it was. He was a man of a century, and was most devoted to the study of every branch of natural history. To the day of his death, he was the head of, perhaps, the largest printing and type-founding establishment in Scotland, and although he was assiduous in business, he always found time sufficient to pursue his favourite science. I do not know at what age he died, but it must have been considerable, for he had become one of those men who had outlived his generation, and for some years past had been regarded as one of the "characters" of Edinburgh. Not that he was peculiar or eccentric, but only his outward man was familiar to everybody, and to many who did not know his name. In the print-shop windows might be seen the sketch of an old and rather slim-limbed gentleman, with a slight stoop in his gait, having a thin visage, and prominent profile. His dress of sober black, a pure white neckcloth round his neck, his coat of considerable length in the body, such as old gentlemen generally wear for comfort, and by his side a rather turged brown silk umbrella, in a half-dragging, half-carrying position, such as little boys drag sticks in, when they are playing at horses. This was Dr. Neill, and a very nice, pleasant, and benign-looking old gentleman he was. I do not know anything of his early history, but he has for a long series of years been known as a great naturalist. Those who are grandfathers and grandmothers now in Edinburgh, number among their earliest associations, Dr. Neill's garden, and a curious little garden this was. It was a perfect Noah's Ark, and more than that, for Noah had no plants in the Ark. Here might be seen eagles, owls, a fine specimen of the Snowy Owl, Passerines, Gallinaceae, Grallatorae, &c., &c., and within doors, innumerable specimens of parrots and cats. The Doctor was a bachelor, and his sister a spinster. His garden contained botanical curiosities rather than showy plants. In the greenhouses were cultivated such plants as *Myrtus pimento*, *Cinnamomum verum*, *Laurus camphora*, *Coffea Arabica*, some orchidaceae, and altogether a very interesting collection of stove and greenhouse plants. Out of doors were some interesting herbaceous and Alpine plants, with fine specimens of ornamental trees and shrubs. The garden is situated at Canonmills, on the way from Edinburgh to Newhaven, and about sixteen years ago, when the Edinburgh and Leith railway was projected, it was intended to destroy the Doctor's dwelling, and demolish his garden. He, however, prepared a petition, procured a plan of the garden, with an enumeration of its contents, and proceeded to London, where in the House of Commons he secured such opposition to the project, that the railway company had to alter their plans, and form a tunnel, even at some distance from Dr. Neill's house. As is well known, he was a great naturalist. He main-

tained a long correspondence with Baron Cuvier, and other illustrious men on the continent. He was one of the founders of the Plinian Society of Edinburgh, and for many years walked twice or three times a week to the Frith of Forth, to observe the action of the tides. In politics he was a conservative, and after the passing of the Municipal Act, he sat for some years in the Edinburgh Town Council, as the representative of the aristocratic ward of the New Town of Edinburgh. He was much opposed to innovation. His garden and dwelling-house were situated on a level with, and by the side of, a large stagnant pond, which was continually green with conferva and duckweed, and was the source of many a fever and malaria, but the Doctor for many years strenuously and successfully opposed the authorities in their endeavours to have this pond drained, his heart yearning for the fate of a very large and handsome specimen of Weeping Willow, which having extended its roots under the garden-wall, for many years imbibed the sweets of the Canonmills pond."

It only remains for us to notice a few more passages in the life of Dr. Neill, more immediately connected with gardening. In 1840, he published one of the best compendiums of the art we have, and entitled *The Fruit, Flower, and Kitchen Garden*. It is an amplification of a treatise he had written some years previously, for the Edinburgh Encyclopedia, a treatise which had been largely plagiarised by those who deserved a more severe castigation than is contained in this dignified rebuke by its author—"Of that treatise, the writer may be excused for observing, various authors have pretty freely availed themselves; among others, the author of 'The Manse Garden;' thus indirectly tendering their testimony of approbation."

At the close of 1809, a meeting was held at Edinburgh, for the purpose of establishing a *Caledonian Horticultural Society*, which was organized early in the following year, and incorporated by Royal Charter, in 1824. Of that Society, Dr. Neill was one of the first secretaries, conjointly with Mr. Walter Nicol, of whom a sketch will be found in our last volume, and upon his death, in 1811, except for a short period, Dr. Neill became the sole secretary, and retained that office until his death. At the first anniversary meeting of the Society, Dr. Duncan observed—"I say no more than the truth, when I assert, that from his industry, and from his abilities, this Society has already derived many important advantages." Those advantages continued to be reaped by the Society, and to mark their sense of the source from whence they were derived, the Society voted him a piece of plate in 1821. This took place during his absence on a continental tour, in company with Mr. Forbes, the Society's gardener, and the results of that tour appeared in 1823, under the title of *Journal of a Horticultural Tour through some parts of Flanders, Holland, and the North of France, by a deputation of the Caledonian Horticultural Society*. To that volume we shall probably have occasion again to refer. At present we must conclude with this testimony, published by one of his Edinburgh contemporaries.

"To a highly cultivated and well-regulated mind, he added a kindly disposition and a genuine modesty, which greatly enhanced the value of his general deportment. In his moral character he was temperate, friendly, consistent, and truthful. Religion had early taken a strong hold of his mind, and, while strictly Calvinistic in principle, and regular in the observance of Christian ordinances, he was no formalist. At an early period of his life he was a member of the Anti-Burgher communion, but for many years he was a steady supporter of the Established Church—an elder in St. Mary's, under Dr. Grant, and a lay member of the General Assembly, representing the Presbytery of North Isles, in Orkney. He enjoyed, however, the friendship of not a few who differed from him in ecclesiastical politics; and we have seen at his table three Professors of the Free Church College, including the late Dr. Chalmers—the guests enjoying the society of their host, and the host delighted with the company of early and esteemed friends. As a man of business, Dr. Neill was uniformly open, honourable, and accommodating, willing to yield a great deal for the sake of peace, but possessed of a sufficient share of firmness, when an attempt was made to overreach him, or to act in a stealthy manner toward him. As a friend he was candid, judicious, and conciliatory, and, in this respect, very many will deeply lament his loss. As a citizen, the town of Edinburgh has lost a clear-sighted and determined supporter. Whether to establish an Experimental or Zoological Garden, to decorate the North Loch, or to protect the Flodden Tower, Dr. Neill was ever ready and willing, with his pen and his purse, to promote every useful improvement, or save from ruin time-hallowed relics. The merits of Dr. Neill as a man of science were very generally acknowledged. His published labours as a horticulturist, botanist, zoologist, and geologist, bear but a small portion to his private efforts to advance the interest of natural science—as Secretary of the Wernerian Society, as the patron of rising merit, and as ever ready to offer the warmest sympathy to congenial spirits. The blank occasioned by his death is severely felt by those who enjoyed his friendship, and by a far wider circle who had satisfactory proof of his great worth and public spirit."

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 48.5° and 36.7° respectively. The greatest heat, 60°, occurred on the 28th in 1838, and the lowest cold, 16°, on the 29th, in 1846. During the period, 83 days were fine, and on 86 rain fell.

THERE is no order of the vegetable kingdom which we have been in the habit of anathematizing so unrestrictedly as the Funguses or Mushrooms. We always have looked at one with the predetermined conclusion that it was poisonous, for in boyhood we were taught to view every one as a Toad-stool, and nursery-imparted prejudices take a deep root and are not easily eradicated. Our repugnance to Funguses is a prejudice, but we hope and think we are not too old to vanquish it, and we shall be aided in our effort by the collection of *Edible English Fungi*, exhibited by Mr. Brocas, of Basingstoke, at the Hampshire Horticultural Show, on the 20th instant, and for which he had an extra prize awarded.

There were arranged on Mr. Brocas's table fourteen plates of Funguses, and of these *twelve* we had always hitherto estimated as deleterious, if not deadly, but the living refutation of our prejudice stood before us in the person of Mr. Brocas, who assured us that he had eaten of every species that he exhibited, and found them not only wholesome, but exceedingly palatable. We had read Dr. Badham's book upon these eatable Fungi; we knew Mrs. Hussey, and M. Rocques were labourers in the same field, but we never felt before so convincingly the force of the old adage—seeing is believing.

On Mr. Brocas's table were *Agaricus procerus*, *A. exquisitus*, and *A. deliciosus*, which Sowerby mentions as luscious when cooked, flavoured like Muscles, brimming with gravy, and which Sir J. E. Smith and others testify is superior to our common Mushroom. Mr. Brocas also had *Agaricus nebularis*, *A. orcella*, *A. comatus*, the juice of which, when prepared, makes an excellent bistre for the water-colour painter; *A. atramentarius*, *Boletus edulis*, flavoured like Cocoa-nut, *B. scaber*, a great favourite with the Poles and Russians, *Helvella lacunosa*, and *Lycoperdon gemmatum*.

Now although Mr. Brocas may be readily able to determine all these Fungi without difficulty, from those very like them, which are poisonous; and although Dr. Badham tells us, and truly tells us, that "in the vast majority of instances they are harmless," yet there are too many instances of fatal mistakes for us not to say—let none be eaten but such as are unmistakeable with even ordinary caution. That caution is requisite needs no other proof than the fact that at Rome, where the poorest classes feed upon the Fungi daily and profusely, yet their every-day experience does not inspire them with the needful power to avoid the poisonous, so that the government have an inspector in the markets "skilled in botany," to authorise the sale of Fungi, and none ought to be vended there without having passed the ordeal of his inspection.

If several of our native eatable fungi have such unmistakeable characteristics—unmistakeable by an un-scientific and ordinarily careful eye—they will be a great acquisition, for they are not only highly nutritious, but will render the commonest pottage relishing; and they are, at times, one of the most abundant of crops. In Moscow alone, £8000 worth are sold annually; and in Rome more than 150,000 lbs. weight are yearly con-

sumed—an amount allowing about one pound annually to each of its inhabitants.

To the consideration of our native eatable funguses, we shall recur on a future occasion, as Mr. Brocas has promised us some remarks concerning them; but before we put down our pen, we would direct the attention of our readers to this not only neglected, but too usually detested, tribe of plants; and we cannot do so better than by printing the following, which has been obligingly communicated to us:—

"There are amongst them some that exhibit the finest colours of the vegetable kingdom; and many in symmetry of form rival the more gaudy of Flora's productions. They spring up, flourish, and decay, after transmitting their principle of vitality to a new race exactly similar to themselves, by means of seeds, which differ greatly in size, shape, and colour, as well as in their situation, insertion, and number. Some of them may be recognized by the naked eye, while others require the aid of the most powerful magnifiers to render them perceptible. Many of the fungi are inodorous, others diffuse a cadaverous smell which renders them exceedingly offensive, in others it is tolerably agreeable; the *Agaricus pratensis*, for example, smells like almond kernels, the *A. fragrans* like new-mown hay; on the other hand, the *A. murinus* has an odour resembling that of mice, and the *Phallus impudicus* that of putrid meat.

"The taste of the fungi is as various as their smell: many are rapid and tasteless, and others, though not unpleasant at first, leave a disagreeable burning sensation in the throat, as is the case with the lactescent agarics. Many species are used by man as food; such are the mushrooms; others, however, are baneful when eaten, both to man and animals. Some constitute our most formidable enemies by attacking our houses and fields, which they destroy and blight. That most destructive evil the dry-rot is, by many, supposed to be occasioned by a parasitical fungus, the *Murikis lachrymans*. That this plant attends the disease is certain, but whether its vegetation is the cause or the effect of the dry-rot, is at least problematical.

"In summer and autumn, there are few plants that are not more or less infected by parasites belonging to this genus. On many species of graminæ, particularly on corn, the blight or mildew is found caused by the *Puccinia graminis*: it attacks the leaves and stem, forming linear patches, at first of a yellowish-brown, and afterwards of a black colour. The *Uredo caries*, and *segetum*, or smut, prey on the grain of wheat, &c., and reduce them into a black soot-like powder. The leaves of the common bramble, tussilago, gooseberry, &c., are all subject to their attacks; and, in some seasons, they are productive of much mischief in our fields, and baffle the husbandman in all his attempts to prevent them.

"Finally, the *Boletus fomentarius* was long much used in surgery as a styptic, when applied to bleeding surfaces; but in the present state of that art, recourse is had to much more certain and efficacious means, and it is now used only as tinder, and known by the name of *Amadou*: to prepare it for this use, it is stripped of its epidermis, beaten into a soft, spongy mass, and soaked in a solution of nitre or gunpowder. *Racodium cellare* is one of the useful species, being employed for fumigating bees."

GARDENING GOSSIP.

IN answer to many applications, we thus prominently reply that *Moore's Victory* Geranium is to be found in several Florists' Catalogues; for instance, in that of Mr. Henderson, of the Wellington Road Nursery, where it is marked as priced eighteen-pence. It is of a straggling habit, rather difficult to strike from cuttings, and not a breeder. In an old-fashioned greenhouse belonging to Mr. Young, a brewer at Twyford, near Winchester, a row of this Geranium is grown in pots on a shelf near

the glass at the back of the house, and the plants continue blooming throughout the year.

The first consignment of plants from Mr. Jeffrey, sent to Oregon by the Scotch association to collect hardy plants, has arrived. It contains nothing but well-known species of Conifers, such as *Pinus (Abies) alba*, *Pinus (Larix) microcarpa*, and *Pinus Banksiana*, but this deficiency of interest is neither a ground for suspecting the incompetency of the collector, nor the absence of novelties in the selected region. The consignment was sent, probably, as an evidence that he had lost no time in getting to work.

We see announced in the *North British Agriculturist* the death of Dr. W. A. Bromfield, of Ryde, in the Isle of Wight. He died at Damascus, in October; and we agree with our contemporary in lamenting this great loss from the staff of British botanists, and in hoping that his MS. collection for a floral and botanical map of the Isle of Wight will be arranged by a competent editor, and speedily published.

For the second time we rejoice that Mr. Fortune has returned in safety from China, where, and in India, he has been absent about four years collecting plants of the genuine Tea-tree, and conveying them to the East India Company's plantations in northern Hindostan. He has returned despite the temptation of a lucrative appointment offered to him in connection with those plantations; nor are we surprised at this refusal on his part, if the appointment involved service in Assam, one of the most deadly districts of the Indian peninsula. This revived effort to render Tea a staple product of our Indian dominions may render the following notes, made by us on the spot, of some interest, as they relate to the first discovery of Tea in the Assam district:—

Writing in 1842, we said, "There is scarcely room for doubting that, in the course of a few years, tea will become one of the staple exports of India. Thousands of young tea-plants are distributed annually from the Calcutta Botanic Garden to various European residents, in districts favourable for their growth; and very extensive plantations are under cultivation in Assam, where the genuine tea-plant (*Thea*) has been found native. These plantations, partly effected by government, and partly by the Assam Tea Company, annually become more productive. In the current year (1842) at least 150,000 lbs. will be manufactured, and in 1845 more than twice as much.

"The subject is viewed with much interest at Calcutta; and so highly important is the discovery of tea in Assam considered, that in 1841, the public journals contained many communications, relative to the claim of being its discoverer. The London Society of Arts voted its gold medal to Mr. Bruce, the Tea Company's Superintendent in Assam; and, after a contest, in which the Agricultural Society of India was rendered the arena of not a very creditable partisanship, this Association voted gold medals to Captains Charlton and Jenkins, for their services in introducing the tea-plant to public notice. As it has become of so much interest, we will recapitulate what we know to have been the progress of the discovery.

"In 1815, Colonel Salter was well acquainted with the tea of Assam, that was brought to the Rungpore market in a manufactured state. Three years subsequently, the Hon. Mr. Gardner, our resident at the Nepaulese court, sent flowers and ripe fruit of the tea-plant to Dr. Wallich; and by the latter, they were forwarded to Sir Joseph Banks. In 1822, Dr. Gerard, and others, reported that more than one

species of tea was indigenous to India, but it was not established whether these were not of the genus *Camellia*.

"But in 1823-24 and 25, the late Mr. Scott (well-known as a naturalist in India) wrote to Dr. Wallich, stating, decisively, that the Assam tea-shrub is the true *Thea*, and sending a drawing, &c., of the seed-capsule. Mr. Swinton got part of a boat-load of tea-plants from Assam early in 1826; similar tea-plants were received in the Calcutta Botanic Garden from Mr. Scott, in 1827. Major Vetch, at Lucknow, sent to Assam for some in the same year. Major Bruce, who died in 1825, was so aware of the value of the plant that, in his 'Calendar,' he stated the period for collecting the seedlings and seeds. Major Wilcox knew of the plant's existence at that time, and states his reasons for believing that Major Bruce, and Mr. Bruce, were those who first sent plants and seeds to Mr. Scott—that is in 1823; and Mr. Bruce himself states, he obtained a canoe full of the plants, about 1826, from the same native from whom his brother obtained two plants in exchange for a musical snuff-box. Soon after, Captain Neufville, and almost every one else in Assam, possessed them; and when Dr. Wallich was there, in 1836, he found every one asserting that Major and Mr. Bruce were the first European discoverers of the plants in Assam.

"In 1832, Captain Jenkins was appointed by government to survey Assam, and he furnished an official report of the localities where the tea-plant had been found. Earlier in the same year, Captain Charlton wrote many particulars relative to the plant, in a letter to Dr. Tytler. But nothing for rendering tea an article of Indian commerce was effected until Lord W. Bentinck, in 1834, recorded a minute, recommending "measures for introducing the cultivation of the tea-plant within the British possessions in India." Dr. Wallich visited Assam, and reported very fully upon its tea localities. Government soon after commenced attempts to establish its cultivation; but, by degrees, parted with the larger portion of their plantations to the Assam Tea Company.

"The simple fact, that more than 30,000,000 lbs. of tea are required annually for the British market, and about half that quantity for America, would necessarily keep attention aroused to the proceedings of this Company; from the exertions of which we look with well-grounded expectations, that in the course of a few years, India will share largely in this lucrative trade; and that the value of her tea produce will equal that of her indigo, before any very protracted period of time has elapsed.

"The reports of the Company demonstrate, that though there have been many losses incurred, and many disappointments, which might have been avoided, if the experience and knowledge they have purchased could have been possessed by intuition; yet we do not observe any that have been needlessly incurred. The heaviest have arisen in the endeavour to remove the greatest existing obstacle to the more rapid increase in the amount of the tea manufactured. For in Assam, unlike most other parts of India, the scarcity of labour is extreme. This is not difficult of explication, for the jungle has been allowed to increase to a fearful extent, and when nature is thus neglected, she is a deadly opponent in her warfare against man. She has thinned the population of Assam to a remnant, and the servants of the Company have suffered miserably in the struggle now making to reclaim the wilderness. Every year seems to have reduced the number of the inhabitants, rendering labourers consequently more scarce, and the Company have been making strenuous efforts to remedy this deficiency.

"The most apparent source from whence to derive labourers, was China; because, if the hiring had been judiciously conducted, men, accustomed to some portion of the various businesses necessary to the preparation and packing of tea, might have been reasonably expected to be thence derived. This, unfortunately, was not sufficiently attended to; and instead of procuring a respectable, efficient body of workmen, a set of ruffians were imported, who, by their conduct whilst in Calcutta, demonstrated how very much less than worthless they were, and that to the first loss the Company most wisely submitted, though amounting to nearly 30,000 rupees.

"Another loss, amounting to about one-third as much, was incurred by endeavouring to get to the tea localities a

gang of 652 Dhangah coolies; for cholera appearing among them, midway between Hazareebaugh and Assam, they took fright—the whole gang disappeared in one night, and no trace of them could be found!

"The direful effect of the climate (it being so malarious, that, as the documents before us state, no European can exist there during June, July, August, and September), has been another disadvantage against which the Company has had to contend; and it is testified by the facts, that within the preceding twelve months, Mr. Duffield, Dr. Lamqua, Mr. Murray, Mr. Marlay, and Mr. Paton have fallen before its death-blast; and Mr. Bruce himself was not only incapacitated from attending to his duties, but reported, 'that at one time, during the past season of production, he had not an individual able to superintend, or to move about among the people, who were equally sickly.' These melancholy losses, and this prevalence of sickness, will decrease as the clearance and cultivation of the land diminishes the generation of malaria."

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.



HEATH-LIKE PULTENEY (*Pultenaea ericoides*).—*Gardener's Magazine of Botany*, iii. 145.—Here is another addition to this beautiful genus of low, bushy greenhouse shrubs, of which about fifty species already have been introduced and described. They all are natives of New Holland and other parts of Australia, and all have yellowish pea-blossom-like flowers. The subject of our present biography was sent from the Swan River Colony by Mr. Drummond, and was raised from seeds by the Messrs. Henderson, of the Pine-Apple Nursery, the spirited employers of our friend Mr. Appleby, with whom it first flowered in April, 1850, and again this season. It seems an excellent pot-plant, having much of the aspect of a close-growing heath with strong leaves. The flowers are produced freely, in close heads, round the top of the young shoots, a tuft of the top leaves appearing in the centre of each head, as is shewn by our woodcut. Altogether this new plant may be classed among those now much esteemed, from their close habit and neat appearance, for exhibition specimens, and which every lover of good greenhouse plants should cultivate in preference to the usual mixtures generally

selected. The genus *Pultenaea* was named by Sir Edward Smith in honour of Dr. W. Pulteney, a patron and historian of botany. It belongs to the Natural Order *Leguminous Plants* (Fabaceæ), and a large section of allied plants from Australia are called after it—*Pultenaea*, of which we may mention *Burtonia*, *Daviesia*, *Dillwynia*, *Eutaxia*, and *Gastrolobium*, as well-known genera to every gardener. In the system of Linnæus, *Pultenaea* is in the first order of the tenth class, *Decandria-Monogynia*. B. J.

Cultivation and Propagation.—This, like a host of stiff woody plants, inhabitants of the greenhouse, is increased by short cuttings of half-ripened side-shoots, under a bell-glass, in very sandy peat, with a layer of clean sand on the top. Some cool, close situation should be devoted for such cuttings until they are on the eve of making roots, when a mild bottom-heat would hasten their rooting; but it is not a safe plan for amateurs to give much bottom-heat, or a long continuance in heat, to this class of cuttings; for if the cuttings are thus forced to make unnatural growth, the young plants will become liable to mildew and other diseases. When the cuttings are rooted, the young plants should be put into nursing-pots, four or six in each, in sandy peat, and at the next potting, a little yellow loam should be added to the compost. Full-grown plants will require one-third turfy loam, the rest fibry peat and sand in the usual way. D. BEATON.

THE FRUIT-GARDEN.

THE BLACK CURRANT.—REST-PRUNING, &c.—(*Continued from page 112*).

AMONGST all the fruit-bearing bushes, the subject of the present article holds a very important position, whether in confectionary or in its medicinal bearings. This currant is somewhat more difficult of culture than the red, or, perhaps it ought to have been said, more difficult to please with regard to texture of soil.

No soil that does not retain a considerable amount of moisture during dry weather will grow it in high perfection. The fruit is liable to cast, and the whole bush to become severely blighted on hot and hungry soils. It attains a high degree of perfection trained to the wall; and as it both bears and loves a partial shade, is very well adapted for walls contiguous to town or suburban buildings, or such as we frequently find enclosing what are termed back-yards, where any aspect would suit it, excepting the north, and there the Morello cherry would be found to succeed best. Those who try it in such situations, should take care to provide a foot in depth of good sound soil, with a border nearly a yard wide, and some sort of edging six inches above the ground-level, to retain mulchings, which are of greater benefit to this fruit than any other under culture.

And now, whilst remarking briefly on training, which, as before observed, is (in some cases) a necessary preliminary to rest-pruning, it may be observed, that this fruit would no doubt succeed exceedingly well on a simple "strained-wire" trellis, such as we see employed in some places as ordinary field or paddock enclosures. Such may be put up at a small expense,—so trifling, indeed, that we wonder much that they are not employed in all gardens. When we get the "rest-pruning" well brought up, we do hope to point to the great eligibility of such espalier lines for various fruits, whether as useful

or ornamental, or, indeed, as combining both principles, which they are eminently capable of doing. Every one knows that this currant is very fleeting in character when ripe, and although not so much esteemed in the dessert as some other fruits, yet there is a class of palates to which it is peculiarly agreeable; whilst its wholesomeness and medicinal qualities to the invalid, or persons in a convalescent state, will be at once admitted. Now, the Black Currant cannot be secured on the trees when ripe above three weeks, as far as we are aware, retarding therefore should be had recourse to; and there is little doubt that such, managed with judgment, could be made to prolong their season a couple of months. How to perform this will be discussed in its proper place; it is merely named here, to point to a triple purpose in adopting espalier strained-wires, viz., increase of quality and size, retardation, and a subserviency to the decorative character of grounds.

In all "slips," or those plots in small gardens where an intermediate or transition plot exists between the lawn and the kitchen-garden, we may frequently employ some gardening device of an artistic character; such matters, properly managed, ingeniously conceal the cramped features of the place if small, by keeping the mind of the visitor constantly employed, and even by mere multiplication of details. In the flower-border, flower masses of simple forms for the ladies to cut bouquets from, together with the hollyhock, dahlias, huge asters, delphiniums, &c., might be appropriately combined with the standard rose promenade, and ornamental fruit trellises. However, as we find we are approaching the confines of our coadjutors, we must beat a speedy retreat, and withdraw our forces into the cabbage territory. And now, having pioneered the way for the "rest-pruner," let us suppose a time-honoured, venerable-looking personage standing, knife in hand, over the devoted bush. With eagle's eye, he first surveys the *general outline*, to see if, without sacrifice of any importance, he can improve the figure of the bush, and pave the way to symmetry, so much admired, whether in a bush or a building. This done, perhaps severe amputation becomes necessary, and, if so, it is performed before thinning-out is accomplished. He now proceeds to thin-out cross-grown, or interior shoots, that is to say, providing the bush has shoots to spare; and, indeed, having done this, he may almost put his knife in its sheath.

It may be proper to observe, that *shortening back* is not resorted to by system; the wood is generally left untouched in this respect, unless it has been blighted in the previous summer, and is, in consequence, much distressed when it becomes expedient to remove portions which appear immature, or not subservient to the end in view. Shortening-back is also had recourse to in young bushes, for the purpose of "making wood,"—a gardening technicality, signifying that, by the removal of a part of the terminal point, an increase of the side-shoots may be expected, and this is almost certain to be the case; indeed, by such means must the necessary form be created. And now, as to the average distance to which the young shoots should be thinned. Perhaps it will be well to advise on the *thin side* of the question. From three to five inches may be considered a very proper distance in ordinary cases; and, in stating distances, it is necessary to allow some latitude, as the young shoots will, under all circumstances, grow somewhat irregular. Of course, a wise pruner will leave the young shoots rather thicker at the exterior portions of the bush than in the interior; and why? because at the exterior they receive more light, and this, in conjunction with a well-fed root, is the stepping-stone to succeed. Thus far the Black Currant; next may come

THE RASPBERRY.—Those who have been accustomed to prune, stake, &c., this bush-fruit in February, or even

March, will be apt to think that we are in a hurry, and that there is little occasion to press such matters now when they are so very busy. But "procrastination," sang the poet, "is the thief of time;" aye, and it can steal Raspberries too; for with all fruits which bud somewhat early, and which depend, in the main, on robustness of habit for good cropping, it is of importance to prune as early as possible, in order that no strength be thrown away. Besides, although good gardeners are always busy, yet the pressure of business is nothing so great in the autumn as in the spring.

We may here again just advert to the great eligibility of a *strained wire* espalier fence for training the Raspberry on; by which plan they will be produced in the very highest perfection. And such might be made either to accelerate or retard this fruit by a little management. A trellis of this kind, placed a few feet from a building, a wall, a fence, or even before a hedge, would, according to the amount of favourable circumstances, accelerate their ripening; of course the position just reversed would produce the contrary effect. Whilst thus digressing, let us observe that those who want to retard the *summer* Raspberry—say "The Fastloff"—should select a cool soil; that is to say, one inclining to adhesiveness, and, if possible, of a dark colour. If such cannot be secured in the locality, strong and adhesive loam may be mingled with the ordinary soil if light, and a naturally humid position chosen. By such means, and by pruning back a second time,—as rose-pruners retard their Moss and Provence roses,—we have no doubt that the Fastloff Raspberry might be *run on* until the double-bearing took up its labours.

As for the principle of cutting-back after breaking, we have tested it fairly; it is only waiting until the rasps bud a quarter-of-an-inch, and then cutting a few inches of the most advanced buds away. Of course, a slight loss of power is experienced; this, however, is easily got over by top-dressings, dung-water, &c. As for the old Moss and Provence roses, we have for years retarded them by such means, for our worthy employer, being a parliamentary gentleman, cannot get down here until the rising of the House, by which period the old Moss and Provence or Cabbage roses would have made their devoir for the season. Mr. Beaton could discourse excellent things by taking this subject for a text.

As to the rest-pruning of this bush, it is extremely simple. Those who want to make new plantations, should do so forthwith; a piece of business, indeed, best done in the first week of November, at latest. The fact is, the surplus suckers *must be drawn away* before the pruning is performed. All healthy shoots produce several more offsets or suckers than are needed; for about four, or, at most, five, are amply sufficient for the succeeding crop. The pruner, therefore, must draw away the supernumeraries first, making a clever selection of good canes for the next crop. When the canes are very exuberant, those of medium character may be reserved; but when not coarse, let the strongest be retained. In fact, they cannot be too strong, if they have not produced axillary shoots, that is to say, if the young canes have not burst into side-shoots during the summer, for such have a tendency to barrenness.

As was observed a few weeks since, new plantations may be made by removing the suckers in clusters, when they can be obtained, it not being unusual to meet with about three in a group, with a large cluster of earth adhering to them. These will, with care, fruit tolerably well the first summer.

The remaining canes must now be shortened back, removing immature or very crooked portions. Most old practitioners cut them back *exactly even*, thinking they look neater. This, however, is a sacrifice totally uncalled for, and neatness has nothing to do with this part of the case. Let common sense, therefore, prevail;

cut them back according to their strength and the character of the wood. As a maximum height, say four feet; and as a minimum, two feet. If, for instance, there be four canes, leave one four feet; a second, three-and-a-half; a third, three; and the last, a little over two feet; this has been our practice for years, and finer crops cannot be. By this practice, the young shoots of the spring are equally developed all down the stakes, and not huddled all in a bunch,—a sure consequence when all are pruned to one height.

R. ERRINGTON.

THE FLOWER-GARDEN.

EVERGREEN CLIMBING ROSES.—There are two ways of making the most of these beautiful Roses, by which they look better than in any other way that I have ever yet seen tried. The first is, to begin them as pillar-roses, tying them up to iron posts seven feet high, standing in rows or in any other way ten feet apart. The posts may be, also, of good, old dried oak, or red deal, and painted either stone-colour or dark green. Then to have small iron chains, or stout rope, painted the same colour as the posts, to run from post to post, and to hang down in the middle between the posts in festoons, and to train the Roses on them when they reached the top of the posts. A good new rope, if well painted three times before it is put up, or soon after fixing, before it gets any wet, will last a dozen or fifteen years, with only one coat of paint once in five or six years; indeed, I know where rope festoons have stood thirteen years without having received any paint at all after the first three coats at the time they were put up, and now, if the ropes were cut away to-morrow, the Roses themselves would hold on and festoon between the posts just as well as if all the ropes and chains were renewed over again. If two or three years' old stout healthy plants are put in against these posts or pillars, and the border is good, the shoots will reach the top about the middle of the growing season the second year after planting, if not before the end of the first growth. The best plan, however, in the long run, is to allow two seasons' growth for covering the pillars, so that they be well furnished with shoots of different lengths, otherwise they will be liable to get naked at the bottom, unless the plants are allowed to form suckers, and that should be avoided, as much as possible, until the whole of the posts and festoons are well covered. At all events, we shall say that the shoots made in two seasons are pruned in to the size of the posts before the end of October the second year, and that they have three or four ties, but not very tight,—tared twine is the best and most durable. There are two points in the management of all kinds of hardy climbers, these Roses included, on which I wish to lay particular stress, and they are these:—As long as they are filling up the spaces intended for them they should be pruned each year, and no matter how long the shoots may be, *two-thirds of their length should be pruned off*. We may all differ on every other point of Rose culture without much harm, but there cannot be two opinions about the pruning and time of pruning young climbers among those whose opinions are worth listening to. Some young beginners run away with the foolish idea that, if a climber has made shoots ten feet long a year or two after it is planted, it would be enough to cut off two feet or so, and that the allotted space would thus be sooner filled, but that is altogether a mistaken notion. It is true, it would not be so bad for Roses as for most other climbers, because the slovenly mode of allowing suckers to come up to fill and hide the naked posts might be adopted to cure the evil; but our present aim is at first-rate management, with a first-rate class of rose bushes, brought down to the end of the second year's

growth, and pruned by the 10th of October, to the height of our pillars, six or seven feet; and we are, next year, to carry them in festoons from one pillar to another, and owing to the closeness of the times, we have not yet stretched the ropes to run them on, but any time next April will be quite time enough. Meantime, we are to look out for ropes or for small-link chains, the latter are more easily managed, because they are easily fixed, by hanging the first and last link of each chain to a hook in each pillar. The top of the pillar may be a round ball, or it may end in a sharp point, or be of any fanciful shape, to please the eye of the owner, and immediately under the top a hook must be fastened on each side to hang these chains or ropes to. The easiest way is to have a small iron ring with a hook link attached, and to fix the ring in the post with a staple, but any other way will do as well, provided we fasten the ends of the festooned ropes, so as that they can freely swing to and fro after the roses are grown over them. To see these festoons in the blooming season covered with myriads of hanging blossoms, and swinging backwards and forwards with the wind, is one of the most beautiful sights in the garden. There is a whole collection of these climbing Roses festooned in this manner, in one of the flower gardens at Shrubland Park, and nothing in the whole place used to be so much admired by ladies who saw them in bloom, and they called the festoons by all sorts of endearing names, "living beauties," "fairy wreaths," "lovely garlands," and fifty more names to the same effect.

The next method alluded to, is to have *Weeping Tree Roses*, by budding these strong growers on stout stocks of the common Dog Rose from the hedges, and allowing their long pliable shoots to hang gracefully down on all sides until their tops sweep the ground all round. This is quite a new plan, introduced a few years since, by Mr. Rivers, the great Rose grower, and next to the festoon system is the most elegant way that can be adopted to show off their graceful habits. Many good Rose growers, who have only heard of this plan from common report, have gone away with the idea that very tall and very strong stocks were essential to carry out this system, but such is not by any means the case—if the stocks are healthy it is all that is needed, the enormous quantity of leaves that will come out in two or three years will make a stock, not stouter than a walking-stick, at budding times, so strong as to carry a very large head, and as to height, two feet are as good as six; for we must bear in mind that, although the long shoots must weep down to the ground by their own weight, after a while, they will not do so in the first instance, but shoot up as straight as an arrow from the bud the first year, just as you see a sucker coming up from the roots of an old stool. Any one in any part of this kingdom may have a large Weeping Tree Rose in a short time, by attending to the following simple rules:—Procure young, healthy Dog Rose stocks, two years old will do just as well as if they were as thick as one's wrist, perhaps better; bud them from two to three feet from the ground in the usual way, with any or all the evergreen climbers which will appear in our list, and before the bud or buds start, place a stake five or six feet long against the stock, and to this tie the shoot from the bud as soon as it is a few inches long, and have an eye to the budded part all that season, to see that no more shoots spring from it, as they are prone to do in these running kinds. When the one shoot reaches the top of the stake and is firmly secured there, it may have its own course for the rest of the season, and very likely it will bend over and get rubbed against the top of the stake, but that does not matter much, as it will have to be pruned in October lower than the top of the stake. At this first pruning, the length of the final stock, so to speak, may be determined on, up to near the top of

the stake, if we wish the stem to be five feet high, all we have now got to do is to cut the young shoot so as to have four good buds above that height, and then to pick out all the buds below that with the point of a sharp knife; rubbing them off with the finger will not do, because a second and a third crop would soon issue from the roots of the old bud, but it is now an established fact—a law in vegetable growth—that if we root out a bud, or all the buds, from a shoot made that season, that shoot has no power to make any more buds, on the part disbudded, therefore it follows that if we extract the buds properly from this summer Rose shoot we shall never afterwards be troubled with side-shoots from this new stock. Then in the second year, the four buds left on the top of the shoot will spring and make four vigorous shoots, and when these are six inches long their tops must be stopped, and they will double themselves in three weeks, thus giving us eight shoots to form a regular head. If all the eight kept about the same strength during the first year, and they should be trained to do so, no more stopping or pruning would be needed for many years, except, perhaps, to thin out a shoot here and there, where they crowded too much on each other, and for the sake of ridding the bush or tree of dead branches, as the great beauty of these Weeping Rose trees lies in the length and fertility of their shoots when studded from end to end with countless blossoms, hanging down in large clusters; indeed, young trees reared on this plan will not take to their true form till they are old enough to carry such loads of Roses as will bend them to the ground. When these climbers are planted for festooning, it will be necessary to keep *Rampant* and *Donna Maria* far apart, as they have pure white flowers, or, if the space is limited, *Princess Maria* should stand between them, being the reddest of this class; but, at a distance, the whole of them will appear as white or whitish roses, and they are so double that we have little chance of infusing red or crimson colours into them by crossing, but our seedling climbers promise better than those we have reared in any of the groups, and we should follow them up. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

JOTTINGS ON SCARLET GERANIUMS, AND SHRUBBY CALCEOLARIAS.—I write on these for the sake of comparing notes. "Every little tends to make a meikle," is an adage, rendered oracular by the sanction of ages. In the different branches of philosophy, as well as in gardening, it holds equally and strikingly true. Great improvements in practice, the result of ideas and conceptions, splendid from their very simplicity, are seldom arrived at at once. The public witness and appreciate the result, without feeling great interest as to the step-by-step process by which it is gained. The unfolding of these gradations is, to our mind, deeply interesting, as showing the great effects produced by the seemingly most trivial causes, and the information elicited and diffused by the humblest instruments. The man searching for improvement rejoices in a new happy idea; he stops not to enquire whether it emanated from peasant or peer. The greatest philosophers have condescended to learn from shepherds and labourers. Almost every man understands *something*, better than the masses by whom he is surrounded. I freely confess that I have gleaned many an idea from the conversation and practice of labouring cottagers. If they have benefited, the benefit has not all been on *one* side. To the statements and enquiries of a higher class of cottage gardeners, I am indebted for the subject matter of many of these articles. For keeping me somewhat right, I am obliged

to the criticism of some personal friends, who, as they want nothing but to tell me their candid opinion, consider themselves *privileged*, notwithstanding the admonitions of our captain Editor, to give me a "bit of their mind," and for this I thank them. One or two of these, from the position and the experience of the writers, as well as the importance of the matter, deserve to be noticed thus prominently, and then our friends can choose for themselves."

Scarlet Geraniums.—Thus writes a friend of great experience:—"I am surprised to see you advocating so strongly the lifting of old Geraniums. I never yet saw an old plant lifted and kept through the winter, do equally well with a young plant, to say nothing of their unsightly appearance for five or six months. It is also more trouble to lift fifty old plants than to strike a hundred young ones. I know it is hard to let the old ones die, even though we should have no use for them afterwards. I must say, you are more successful than most people with these things, but I don't recollect your doing much with them."

To this I may remark, that every system has its advantages, but that so far as *look* is concerned, the young plants will bear the palm in winter and spring, unless you can take up the youngest of the old plants *early*, so as to have them established in their pots, without losing their leaves before winter. Where this can be done and room afforded, I have seen no mode tried that can equal this, for giving massive, brilliant bloom the following year. I have never been able to follow it out to a great extent, because, without speaking of the breaking of the outline of the bed, at an early period, I could not find room enough in winter. I think it was in April I saw a splendid lot of plants, standing in bloom on the floors of late vineries, under the care of Mr. Snow, at Lord de Grey's, that must have been so managed. I saw these plants blooming in beds in summer, and I question, though they might be equalled, if ever they were excelled. Mr. S. told me, that from being so early in bloom, many gardeners prophesied they would be meagre as the season advanced, but that they continued equally good right through. When the friend, whose letter furnishes the basis of these remarks, was most intimately acquainted with my practice, I was obliged, from necessity, to depend chiefly on spring-struck Geraniums, the most of them being turned out in May from the receptacles in which they were struck. The old plants were then chiefly valued for the centre of groups, and for furnishing cuttings in spring. When space became more at my command, I relied more on summer and autumn struck cuttings, because I found they grew less robust, and bloomed more freely than those struck in spring. In the course of time, I found that I had treated my old plants far too kindly when I potted them *late*, and tried to make them green at once. By degrees I got into the notion of merely keeping and not growing them, as mentioned in p. 62;—mentioned, not as superior, nor yet as the best mode by any means, but still as one, which it would suit many of our readers to adopt, and with the results of which, if followed up as there directed, they would not be disappointed. Such plants, assisted by potting and forwarding in spring, beat the young plants for fine flowering. In the article referred to there are several errors in spelling, one of the most important of which is the word *straggling*, in the second col., p. 62, near the top, which should be *struggling*; intended to convey the idea of the number of young plants striving for the *mastery*, all of which, so far as room could be given them, and light reach them, would be productive of bloom, and many of which could often, with propriety, be removed for cuttings. I believe that many of our friends who fail in keeping old plants of Geraniums, do so from keeping them too moist, and not removing enough of the spongy

soft shoots, when it is intended, as in the case referred to, to keep them in a dormant state. Young plants can never be so kept. It is true the plants have no nice appearance in winter, and therefore, none should see them, but those who, looking beyond to-day, can see their bare, unsightly stems, clothed again with verdure.

CALCEOLARIAS.—Potting and Propagating.—Says the same friend, "Lifting old Calceolarias is not much better than Geraniums; the best way to manage them is that given by you, namely, to strike them under a frame or handlight, in the middle of October, and let them stand there for the winter. Few would take the trouble to lift old plants, if they knew they could winter from eighty to ninety under a common hand-light, with no more trouble in the spring than just planting them in their summer quarters. Those thus treated beat all those hollow that were taken up, potted, and nursed in the house all winter." In these remarks I almost entirely agree, except as respects the plants standing so thick until planting time. The treatment described as suitable for old plants was merely to meet unfavourable circumstances. Instead of old Calceolarias not doing much better, I think they do much worse than old Geraniums. The article on Calceolarias by some mistake has not come to hand, and I can only recollect its purport. I can say that a young plant now two inches in height, and well-rooted, not kept with a great many more in a hand-light, but getting half the room and attention that a plant a foot over, and from that to fifteen inches in height, lifted and saved would require, would thoroughly beat that large old plant by the end of April following. I have done little with potting old Calceolarias for years. I find it better, after pruning somewhat freely, to pack them in beds closely for the winter, as lately detailed. These, if I want them, are transplanted again about March, so as to give them more room; but what I value them most for, is the cuttings they yield in spring, as these young plants, struck in September, October, and November, flower all the earlier and better for not being stopped or shortened at all. In fact, some of the best of these shrubby Calceolarias for vases, baskets, &c., will not bloom until after Midsummer, if the shoots are shortened for obtaining cuttings. On the other hand, cuttings from these old plants, inserted in March and April, and well-managed in a slight hotbed, will in a fortnight, not only yield you nice plants, but many of them showing for trusses of bloom. The greater part of these, as well as autumn-struck plants, we generally contrive to transplant into intermediate beds, before consigning them to the bed, basket, or vase, in which they are to remain during the summer.

PROPAGATING SHRUBBY CALCEOLARIAS.—Waving, at present, other matters suggested by correspondents, respecting shrubby Calceolarias and the best kinds, I will conclude this by briefly noticing the mode of propagation I have adopted for these two years, as a gentleman looking at the strike the other day was shrewd enough to perceive and to say, "but you do not strike them under hand-glasses, though." This was true enough, for I had not got any to spare; but whether the result is to be traced to the want of them, or whether it would not even been greater with them, the reader will best judge. A piece of ground on the north side of a range of sheds was decided upon. This was made firm, and sloping considerably from south to north. On this was placed fully an inch of rough cinder ashes, mixed with lime and a little salt. This being patted down, over it was placed a couple of inches of leaf-mould and road-drift, mixed with a little lime, and watered with clear lime-water, the object being to give every worm a quietus, or flit him as an emigrant. Over this was placed one inch-and-a-half of finer road-drift, mixed with the finer sand that may be washed from such drift,

destitute, as we had reason to believe, of worms;—some dusty charcoal would have been added, only we had got on the poverty list. Well, there being no frame handy, something was wanted to support some old lights over the cuttings, and two old straightish fir trees, one at the back, another at the front—one cut in two forming the two ends—constituted altogether a snug little pit, or box, there being no rafters, the old sashes rested on the trees back and front. On this bed, then, the cuttings were inserted, about one inch-and-a-half apart in the row, and two-and-a-half from row to row, the cuttings averaging two or three inches from the glass. Last season there was not one per cent. failed. With one sort this season I have not been so fortunate; and that too a great favourite, the Kentish Hero. It was placed at one of the ends, and before it was perceived, the ground had trickled away from the trees, and left an open space for the air freely to enter. Most of them, however, will strike still, and in case they do not, a few more have been inserted within this fortnight. I would more readily strike Calceolarias in November than in July or August. Of all the other sorts, scarcely one missed. Well-watered when inserted in the middle and end of September, they were never watered afterwards. In some sunny days they had a skiffy dew from the syringe. No shading was given them. The plants being too thick to be trusted with so little slope, part have been transferred to temporary boxes, to be transplanted again in spring, and part have been transferred to a similar contrivance as the home in which they were struck, but with a southern exposure, and much thinner, plant from plant. Calceolarias will stand an amount of damp atmosphere that would be ruinous to many other things. Such plants pricked out now, if they have fair success in winter will, in general, far outstrip old plants kept over the winter, for all purposes during the following season. Still, those who have not such young plants, will do well to take care of some old ones in the way recommended, either for the sake of the plants themselves, or for propagating in spring.

R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC STOVE PLANTS.

SERICOGAPHIS GHIESBREGHTIANA.—A plant belonging to the large Natural Order Acanthads; an order in which are found some of the greatest ornaments of our stoves. We need only mention the *Apelandras*, *Eranthemums*, and *Justitias*, to bear out the assertion. This plant, with the almost unpronounceable name, was first known as an *Apelandra*, but has been changed by an unquestionable authority to the name under which we now present it to the notice of those readers who are cultivators of stove plants. In the course of a long journey in the northern parts of Britain we have met with it exceedingly well cultivated, and presenting a truly handsome appearance. The flowers are tubular, and of a bright red colour, produced from the axils of the leaves in loose racemes. For the winter bouquet they are invaluable, the plants affording a good supply of flowers for a considerable period. There are few plants, also, that surpass it in beauty as an ornament for the plant-stove, if well managed. There was here last autumn a plant of it that measured three feet high, and two-and-a-half feet through, covered with bloom. It was an object of great beauty, and was much admired. Plants of this size are somewhat difficult to produce; but they may be managed even to surpass such a specimen by close attention to the following instructions.

Culture: Propagation.—Like all the order this plant is easily propagated by cuttings. The young shoots make the best. Where plentiful, the tops of the shoots need only be used; but a single leaf, with a bud at its

base, and a small portion of wood attached to it, will make a plant the same season. Fill a pot five-and-a-half inches wide, or less, according to the number of cuttings, with a mixture of loam, and peat, and sand; leave a little space for a layer of sand on the surface, give a little water to settle it, and then proceed to make the cuttings. No great skill is required in this operation. The only point to attend to is not to make the cuttings too large or long; short young shoots, with two leaves on the top, and a joint below to insert in the sand, are quite large enough. Trim off the bottom leaves, and finish with a clean horizontal cut just under the joint. Plant them with the leaves pointing inwards, give a little more water to settle the sand close to the cuttings, and then place them under a hand-light in heat in the propagating-house, or even in a cucumber frame without any glass, excepting the frame-light over them. Shade for a time till the cuttings will bear the light, and as soon as they are rooted pot them off into small pots, replace them in the frame or under the hand-light for a week or two, then inure them to bear the full light by gradually reducing the shade. They are then ready for the

Summer Culture.—If the propagating business has been successful, the young plants will have filled their first pots with roots by the first week in May, and will require larger pots. The best compost to grow them in to flower, is made of the following ingredients: sound fresh turfy loam, one-half; well-decayed leaf-mould, one-fourth; and sandy peat, one-fourth; mix these well together (but do not sift the mixture) at the potting-time, and put it in a place to become moderately dry and warm. As soon as it is fit for use, have ready pots two sizes larger than the ones they are in, drain them well and pot the plants, exposing them as little and as short a time as possible to the open air. This is the point of time to begin to form them into nice bushy plants. It can only be done by severe stopping and tying down the lower shoots as they appear. Naturally it is a tall-growing straggling plant, but by strict attention to stopping and training it may be formed into a handsome bush, such as the one above-mentioned. Repot again early in July, stop and tie out then for the last time. If there is a pit or deep frame on the premises, place the plants in it, and give plenty of air, with due supplies of water. The flowering shoots will be made from that time (July) till September, when, if all has been well-managed, the flower-shoots will be appearing from the axils of the leaves, and will begin to bloom towards the end of that month, and continue in beauty till the end of December.

Winter Culture commences as soon as the bloom is over. Cut the plants down then pretty severely, keep them moderately dry and cool, and in early spring shake them out of the pots, repot, pinch off the tops, and treat them the same as the young plants. The second year they will make the best plants; after which, as they are so easily propagated, it is neither needful nor desirable to keep them.

T. APPLEBY.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS.

Without bringing forward the occurrences of the last year, we have abundant proofs that our opinions of florists' flowers have lost none of their influence, though the floral world has been wooed by numerous invitations to submit their novelties to many different tests, and this justifies us in continuing to claim for THE COTTAGE GARDENER the possession of one security for a fair judgment, let who will give it, whether in the notices "To correspondents," or elsewhere.—It is totally independent of every society, and is certainly not in the interest of

any florist, therefore there is no society's judgment to uphold, and no trader's interest to consult, while *every other Horticultural publication is immediately connected with a dealer or a society dependent on public patronage.* For ourselves we shall not say a word, we are as we are, and as we have ever been, and we can say that the Editor of THE COTTAGE GARDENER never even gives a hint to warp our judgment, and that he endeavours to make the work an authority. Our floral friends then, who are just now in a muddle with two papers, may at least come in for an honest opinion upon all that concerns the true interests of Horticulture, and use THE COTTAGE GARDENER for their organ and their advertising medium. "There are more who read THE COTTAGE GARDENER than are dreamed of in their philosophy."

NATIONAL FLORICULTURAL SOCIETY.—We have never looked with a very favourable eye upon societies of dealers undertaking to inform the public what they ought to buy, and what they should reject; and for the very reasons which the societies advance for their establishment. We admit the evil their prospectuses complain of, viz., the manner in which the amateur public has been victimised, by inducements to buy, at a large price, novelties which have proved not worth the room they occupy. This has long convinced the public—we speak for everybody—that the dealers who have done these things—that is to say, who have by their descriptions induced people to buy worthless novelties, are either unable to judge of the worth of a flower, or wilfully defraud their buyers. But the public, when they deal with an *individual* who has, from ignorance or design, deceived them, can either decline trusting to his descriptions again, or can make a condition to return what is unsatisfactory, or they may universally do what a great many have done—have nothing to do with novelties, and wait until a flower has established its value, or worthlessness; and there was always one security for the public,—the character of the men they dealt with. But what is the case when dealers join a society? They get rid of individual responsibility altogether. As a body, they may pronounce each other's novelties to be good, grant each other certificates of one kind or other, and then, instead of a dealer letting out a flower on his individual responsibility, he shields himself behind the society's certificate.

Now, let us ask dispassionately, and before the people are deceived another year, what confidence can be placed in the collective judgment of persons whose individual recommendation cannot be trusted? We have never seen, in our time, so many people, who ought to know better, drawn into the net of (a dexterous fisherman, truly) one person, and (we say it not offensively, it is too serious a matter to excite any but a straightforward motive) one so utterly incompetent to take a prominent part in whatever appertains to the true interests of floriculture. The proceedings of the National Society have been wrong all through. Members were invited upon the skeleton of rules; and Mr. Arthur Henderson, treasurer; Mr. Foster, president; and Mr. Edwards, secretary; were the only three names to the paper. This invitation was sent to many hundreds known to be amateurs or dealers, with a certain number of blank offices to be filled up. Of course persons felt themselves invited to fill office. It was even represented to certain dealers that it would be a cheap guinea's worth if it were only to be advertised in ten thousand prospectuses. As people distant from each other knew nothing of the affair, and could not consult, a lot of those who fancied they saw some advantage sent up their names. It was no wonder that out of a thousand dealers, twenty or thirty should answer the first invitation. Of the first twenty-nine, there were nineteen dealers. Fourteen dealers and six others were put on the committee, and nine dealers and four others were

ade censors, and the prospectus reprinted with their names;—some of them serving both as committee-men and censors, account for there appearing more than we did there were. Many of these names were highly respectable, though their owners were perfectly innocent of any knowledge of the affairs. By degrees all the places became filled, and we have no less, at last, than twenty-four dealers and fifteen other persons on the committee, and nineteen dealers and thirteen other persons made censors, more than one-half of whom are perfectly incompetent to fulfil the duties of a judge; and it be disputed, we hold the most unanswerable proof of their incompetency; but they are all capable of writing certificates for each other. The censors are paid; serves for a kind of patronage. A certain number are invited every meeting-day to come, and if a country censor wants to come to town it is handy to be paid the expenses of his journey. Mr. Holland was brought up from Manchester to judge one Auricula, the whole flock of which was not worth the cost of his journey, though there were half-a-score persons in the metropolis equally capable. Mr. Cole, a gardener at Birmingham, has also been invited more than once; and although the subscription is most extravagant for a society which gives no prizes, it will be found that the money received has been pretty well disposed of. Many, however, consider that there has never been a general meeting to elect all the officers, as there should have been; and that all the distant members are precluded from voting by ballot, therefore that they would be merely finding funds for the few members who live on the spot to play with. More than one hundred persons' names have been given, whose distant residences render their attendance impossible; and we hear from many that they were deceived as to the character of the society. Of the committee, no less than seventeen are too distant to attend, unless they have something to show, and then distance is not considered. The following are the only ones within six or eight miles:—Messrs. Ayres, Beck, Davidson, Fairburn, Firth, James, Glendinning, Gray, Groom, Henderson, Lee, Midgard, Lockner, Newhall, Pearson, Proctor, Rowland, Slater, and Staines; Bragg and Turner have twenty miles to come, and therefore come when they have anything to show. These gentlemen, not one-half of whom attend, have the spending of all the guineas, and paying all the censors: they invite whom they please, and it must not be lost sight of that eleven members of the committee, who pay the censors and invite them, *are themselves censors*.

The question is, how does the society work? By attending the meetings when the productions of the whole floral world are to be sent for a character, we have found a number of old plants and flowers mixed among a few new ones, a dozen to twenty persons, chiefly those who were censors, members of the committee, who have brought something to be judged; the chairman reads what awards have been made, and all is over. None of the public, at least worth mentioning, come near the place, and an hour after the report is read, the room is deserted. But this is not the principal object; how do the awards work? What confidence can the public have in them? The general value of these awards may be guessed at, when we inform our readers that they have *given each other* very nearly a hundred recommendations, and nearly all of them among the committee, censors, and other officers: *Fifteen for Vinarias*, and *Twenty-five for Pelargoniums*. The *Antirrhinum*, which, so far as we have yet gone, remains a worthless weed, has been honoured by a first-class certificate, but it belonged to the secretary. Five *Gladioluses* have been awarded favours, but they belonged to one or other of the censors. We do not mention these facts to imply favouritism, but to show the perfect

anomaly of the constitution, and to point out that the only use of a test is to protect the public; while here it must be clear to everybody, that their interest is exactly opposed to the interests of the owners of flowers. The public are interested in knowing as few as may be, and all really advances on what we already possess; while the raisers, of which the executive is chiefly composed, are interested in commending as many as possible.

We anticipate that it is morally impossible to get all this year's subscriptions in, and that there will not be half so many got in next year. We have conversed with many persons who sent their names under an impression that the Society was very differently composed, and we invite the committee to publish a list of all the certificates and commendations awarded, and to whom, and to place against each name the office he holds in the Society, whether president, committee-man, censor, or merely member.* We are not in the habit of flattering raisers of flowers; and it is no uncommon thing for us to find varieties, which we have condemned, sent to the National, and obtain their honours. When we say the executive of the National have praised and honoured nearly a hundred different subjects belonging to either their own committee or censors, we only speak of what they did up to September; what they have done since, will form the subject of another notice. We saw now and then novelties, infinitely better than they rewarded, go without any notice whatever, and many things not so good as we possess already, rewarded with their approval.

But, we may be asked, what ought to be done? To which we answer—Every man ought to vote by ballot for the election of officers, and particularly for judges. The names of candidates should be received up to a given day; the list printed, and sent to all the members, who should mark against those they vote for, and send their papers through proxies of their own appointment. The judges should be independent, and a limited number,—five, or seven at the most; and certainly not dealers. If they are to be paid, pay them as directors of public companies are paid, and let the sum for all be paid among such as attend; three being a quorum. In such case, the best men will be chosen, and they would have a character to lose. Let it be a post of honour, such as good men may be proud of, and let every one be allowed to address the subscribers, stating their pretensions. Let them be men who understand all things, not the mere grower of one or two subjects. We should be sorry to see the strength of the *National Society* dispersed again, but better this than it should proceed as at present constituted. We, so far as we are personally concerned, would much rather take an individual opinion than that of the present Society. The fact of a committee having the power to call in and pay whom they like of thirty-two persons published as censors, and a great portion of the thirty-two themselves serving in the double capacity, must shake public confidence.

Соскѣсомъ (E. B.).—A monster certainly, but they can be grown quite as large from cuttings. As soon as a plant shows the flower let the six upper leaves form the plant, cut two inches below them, strip off all but the six, pot singly in 60-sized pots (three inches diameter), plunge them in good bottom heat, water well, and cover with a hand glass. They will make good root immediately, and as soon as the fibres reach the sides shift to larger pots continually, using rich soil, say peat, rotted turfs, and dung from a melon bed. Plenty of heat, light, and moisture, by keeping them near the glass in a good hot-bed, will complete their growth to an

* Such a list has just been published, and is called *Transactions of the National Floricultural Society*. Can an instance be quoted when the Society gave a certificate to an inferior flower, when a superior was present?—ED. C. G.

enormous size. E. B's. specimen may be tall, but those grown from the tops, with six leaves, remain dwarf and handsome. This is no idle theory. There is no art in growing large combs, but there is some in producing handsome dwarf ones. We have had them fairly cover a twelve-inch pot, and the leaves project considerably.

VERBENAS (T. M.).—Specimens neither their natural colour nor form. There is no dependence on such late blooms. There is promise in number four, the breadth of petal and its freedom from notch are good points. The notch is the prevailing fault, even of some of the best; we do hope to see round blooms some day. There is what the botanical works call a sulphur-coloured Verbena, but we do not know where to obtain it, we think it was called *Sulphurea*, but it must be nearly twenty years since we saw it, and then thought it a poor apology for its name. It was introduced in 1831 or 2, from Chili. *Malindres* was from B. Ayres, 1827, which also gave us *Pulchella*, *Rugosa*, and *Venosa*. Nearly all the species were introduced from 1820 to 1837, but the species so called have given place to garden varieties. We should like to see if something approaching a yellow could be obtained from *Sulphurea* by seed.

CESTRUM AURANTIACUM (P. P.).—The orange-coloured flowers will, under good management, continue to succeed each other as long as the plant is continued in growth, every shoot will send forth its bunch like that sent to us. We saw it three years ago in the conservatory of Mr. Salter, as large as a lilac tree of seven years old, and flowers all over it, but we have treated a plant or two rose fashion, and spurred them in to one or two eyes in the ripe one-year-old shoots, and thus bloomed the plant less than a foot high. We consider it a hardy greenhouse plant, and one of the most showy in cultivation. When the wood is ripe, and before the new growth begins to show itself, cut in tolerably close as you would a dwarf rose. It properly blooms in autumn, but we have had it up to Christmas.

M. D.—There cannot be a better permanent yellow for the borders than *Calceolaria engosa*. It will bloom in July, and continue in profuse flower until the frost cuts it down. It has, too, one of our strongest recommendations, the flower forms by much the larger portion of the plant, literally covering the surface of foliage, which is of itself pretty.

A. L.—The plant which in its withered state had greatly the appearance of one of the Acacias, has recovered in water, and is evidently a *Ruscus*, perhaps *R. Hypophyllum*.

SELECTION OF CHRYSANTHEMUMS (A. D.).—1, 5, 6, 7, 8, not worth growing, and ought not to have been sent within the last two or three years. 2, *Nancy de sermet*; 3, *Temple of Solomon*; 4, *Queen of England*; 9, *Annie Salter*; 10, *Lady Talford*; 11, *Goliath*; 12, *Tasselled Yellow*. Why not send to the dealer for the names? We should send the others back, they are among the worst of the old ones, and have nothing to recommend them.

FUCHSIAS (C. M.).—In recommending anything for show, we do not profess to run through all of even our own old favourites, but to point out such as decidedly beat them. Without entering into particulars we would simply observe that *Purity*, *Lucantha*, *Criterion*, *Beauty supreme*, *Exquisite*, &c., have been fairly beaten by newer varieties, and, in such case, without calling upon florists to throw away their old favourites, we enjoin them to grow new ones that are better, and they will soon see which they can spare best. Those we recommend have some better points. They reflex better, or have a better contrast, or a better habit. Mayle himself sent out a beat upon his *Purity*, which does not reflex, while his *Hebe*, *Lady Dartmouth*, *Bride*, &c., did. Newberries' *Delicate* was adopted from the seedling plant by us, but when beat in the habit we let it go by. Kendall's *Elizabeth* was selected by us as a better flower

than his *Beauty supreme*, and yet too much like it for any one to want both. There will be some mistakes made this year, through one or two of the best novelties having been shown under number in one place, and named in another, and one or two others having been reported under two names. For instance, in our notes we find *Diamond* and *Diadem* either the same thing or near enough for our notes to be similar. Then *Banks's*, No. 1., was said to be named *Leda* and *Leader*. However, we do not neglect a good old variety until a new one in the same way has beaten it.

A. J.—We cannot identify anything coming out by a drawing sent to us. We find so much difficulty in getting an artist to give us the peculiar features which decide the merits of a flower, even while we are standing over him, that we place no dependence whatever on a drawing. In the one before us the thing is altogether too mechanical to be true. We would not even buy it from the drawing.

FLORISTS' FLOWERS CULTURE.

THE PINK—(Continued from page 38).

Propagation. By Cuttings, or, as they are called by florists, *Pipings*.—Pinks are more easy to propagate by pipings than carnations; the latter, in consequence, are generally propagated by layers. The reason why pinks succeed better, is, no doubt, because their pipings are not so gross, or full of sap, as the carnation, and, therefore, are not so liable to damp off during the period before roots are formed.

Season for Piping Pinks.—The time for this work depends upon the growth of the plant. As soon as the side-shoots are long enough, they may be taken off and put in. This will generally happen about the end of May, or beginning of June. The earlier it can be done, the better plants the pipings will make; and, in consequence, will stand a better chance of passing through the winter unharmed, and will flower the finer the following season.

The pipings may be planted in various ways, either in pots, under a frame, or under hand-lights. For an amateur, perhaps, the pot method will be the most convenient, and also the most certain. The materials necessary for this purpose are a good sharp knife, a few bell-glasses, and pots to match them. The soil most suitable is good light sandy loam, without any admixture, and a portion of pure white sand to place on the surface. All these should be got ready some time before they are wanted. When the pipings have grown large enough to take off, that is, when they are two or three inches long, proceed to cut, not pull, them off, as is sometimes done,—thus needlessly injuring the parent plant. Cut them as close to the old plant as you please, but do not injure the stem. When as many pipings as one variety will afford, or as many as may be required of it, are cut off, put a number or name to them, and then dress off close the lower leaves, plant them, and place the tally to them at once to prevent confusion. Do not cut off the ends of the leaves that are left. This is commonly practised without any sensible reason for the mutilation—the leaves of pinks are not so large as to require it, if the pipings are of the right size;—give a gentle watering to settle the sand close to each piping, and plant them so far within the rim of each pot as to leave room for the bell-glasses to rest upon the sand within the pot. Proceed thus till all the varieties desirable to propagate are finished, and then place them with the bell-glasses over them in a frame covered with glass, on a very gentle hotbed, either of stable litter or spent tanner's bark. If judiciously done, and carefully attended to with water when necessary, and shaded from the bright rays of the sun, almost every piping will root and make a plant. Directly roots are formed give

plenty of air, and leave the bell-glasses off every night, replacing them during the day for a short period. Leave the glasses off entirely as soon as the plants will bear the light, and then remove them out of the frame, and place them out-of-doors upon a bed of coal-ashes or gravel for a week or two. By this time the planting-out-season will have arrived. The beds to receive them should then be in a state of readiness, and they may be carefully taken out of the cutting pots, and planted where they are to bloom the following season. This propagation process must be performed every season. It is a fact well known among florists, that one-year-old plants only produce blooms fit for the exhibition-table. Two-year-old plants will answer admirably as bedding-out plants, or to plant in the mixed borders of the flower-garden.

If it is thought advisable, or is more convenient, to plant the pipings in a bed prepared in a frame heated underneath with any lasting fermenting material, the mode of preparing the piping is exactly the same; the soil on the surface is also the same, only let it be of sufficient depth to prevent the heat being too great. Level the surface, and plant the pipings in rows, placing, as a matter of course, a tally to each variety. When they are put in shade, water duly, and give air as soon as roots are formed. Then take them up carefully with a trowel, and plant them in the blooming-bed. Pipings of pinks will root under hand-glasses also, planted in bed of the same soil, with a coating of sand, in a shady part of the garden. The only objection to this mode is that the cuttings are much longer in forming roots, and, therefore, liable to damp off by being so long confined under the glass.

The next and last mode of propagating pinks is by *layers*. Some varieties grow very strong, and then, like the carnation pipings, they are so full of sap, that they damp off immediately. Such varieties should be layered exactly in the same way as a carnation, and when the layers are rooted, take them up and plant out at once in the blooming bed. T. APPLEBY.

(To be continued.)

THE KITCHEN-GARDEN.

BEET, ITS CULTURE AND QUALITIES.—As much difference of opinion exists on the necessary qualities of this vegetable, and having no great authority in such matters, no "Glenny" to tell us the "properties" of a good article, and those who would be legislators in the case are anything but agreed, we are induced to offer a few remarks on its general culture, and what we consider to be its qualifications; not that it requires especial notice at this particular time, but that in doing so now we shall be better able to devote more time to pressing affairs at a more busy period. Commencing with its cultivation, we may say that we never sow this on very rich ground; generally we select a piece that has been well dug, perhaps trenched, but no manure used. The principle of encouraging a vigorous growth, as a means of enhancing quality, is not applicable in this case, as with the Brassica tribe, celery, lettuce, &c.; on the contrary, we think quality is often sacrificed when Beet is grown too luxuriantly, and we have seen some exhibited at Horticultural shows that was more fit to compete with the Mangold Wurzell at Agricultural meetings, and no doubt the disappointed growers might feel astonished at the judgment which set their extraordinary growth aside. The mode of growing it has, we believe, more to do with its quality than is generally admitted, as we never remember seeing a very large root that was at all good, therefore, as a preventive, we sow on rather poor soil, that is however, loose and open; about the first week in May is soon enough, unless the appearance of

settled dry weather a week or so earlier, renders it advisable to sow it then, lest it miss "the season." We mention this, because in some gardens there is a necessity to guard against sowing important crops immediately after the setting in of the dry period; some soils obstinately refusing that genial moisture necessary to vegetate seeds at that time, and watering is but a lame alternative; the tender plant is difficult to rear by so artificial a nurse, and too often languishes and dies, even if it comes up, which is not always the case. But supposing the plants to have come up irregularly, our duty is to take advantage of the first showery day, and carefully plant up all deficiencies. We are not acquainted with any root crop that succeeds so well transplanted as Beet, (autumn-sown onion, perhaps, excepted). Be not too late in thinning those left, and attending to the usual routine of summer hoeing, weeding, &c. We will suppose the autumn to have arrived, and will now glance at the quality of the crop. As we have before said we do not like it large, neither do we like it long; not that the latter property diminishes its merits, but when it is too long there is a great inducement on the part of the girl who has to boil it, to curtail its length, "it won't go nicely into the pan she wants to put it in," and we all know with how little damage its colour is impaired; in fact, the best coloured Beet is no better than Mangold Wurzell, if much damaged before, or in the boiling, we therefore trust our gardening friends will, for their own credit, enforce attention to these matters. If in point of shape it resembles the Horn Carrot, though larger, it is like what we want it—short, yet with not too much swell on the part above ground, and not forked, but in taking up not a fibre must be broken. Now for colour, and this is where the various opinions lie:—some contending that to remove it as far as can be from that article given to cattle, it ought to be as dark as possible; and, pandering to that taste, seedsmen of late have called it "Black Beet;" others, with as much claim to attention, have insisted on its being a bright blood colour, asserting that if its other qualities be good, that is the tint, its appearance at table contrasts best with other things; while others take a medium course, and prefer a good crimson. Without giving a decided preference to any of these ideas, we may say that its quality ought to be tested by other means as well. When a root is cut through, it ought not to show those concentric rings so common in coarse kinds, neither ought it to be streaked with fibres of a lighter colour, and after boiling it ought to be firm, yet not stringy, and all to appear alike. We have seen slices of it in which the softer parts receded from the firmer, which stood up in bold or rather rugged relief, like breakers on a deceitful coast, pretty to look at, but the dread of those who come in contact with them. This property we hold of quite as much importance as that of colour, and we earnestly advise the amateur in selecting his roots, to ascertain if they possess good eating qualities, as well as a pleasing appearance, for though perhaps not much required for that purpose, still we would like everything sent to table to be as agreeable to the palate as to the eye, and if public taste insist on having Beet of a dull liver colour in preference to a brighter red, it may as well possess the other qualities also. This is now a good time to take it up and stow it away, as we have seen it suffer much from hard weather, but on ordinary occasions it keeps very well in the ground. Be especially careful in taking it up that no rootlets get broken, and strip off the leaves in a conical manner, leaving about an inch of the footstalk adhering to the crown of the plant; stow away in sand, and few roots keep so well as Beet.

SUNDRIES.—If the weather threatens to become severe, prepare for it by taking up a quantity of *Turnips*, which store away. Cut also all *Broccoli* that is ready, and if any *Lettuce* that is fit for use could be taken up by the roots

and laid in some dry place, so much the better, it is hardly necessary for the place to be light now, as growth will have ceased. The same may be said of *Celery* that may be wanted daily. Examine all crops now forcing; see that the *Sea-kale* does not get scalded, and look to *Rhubarb*, *Asparagus*, *Mushrooms*, &c., not forgetting the more delicate articles, *Cucumbers* and *French Beans*, which, at this untoward season, require especial care. Advance all outward works in accordance with the weather; when

frosty, *wheel dung*, and other composts, and when damp the various heaps will most likely want doing up, and all disorderly or neglected corners putting to rights, as by a judicious disposal of time many things may be done now which, if left, would embarrass a more busy season. As soon as all leaves of the fruit trees and others in the vicinity of the garden are fallen, let every place have a general *cleaning up*, and it will remain tidy a great part of the winter. J. R.

MISCELLANEOUS INFORMATION.

ALLOTMENT FARMING—DECEMBER.

DURING the last few months, we have had several inquiries (apparently from our suburban friends) as to the best appropriation of one or two acres of ground, and the keeping of pigs, by persons of the middle class of society; and as there is little to say now in addition to last month's remarks, to the mere cottager, we will try to examine this question, at least as to a few of its main features.

A few extracts from a letter recently received from "A. B., of Liverpool," will pretty well show forth the aims of this class of applicants. In alluding to Mr. Sillet's pamphlet, reviewed in a former page of this work, he says, "I am of opinion with him, that pigs are more profitable than cows on such a limited piece of ground as he possesses, two acres; and that with judicious cropping, management, &c., a good number of pigs can be fed and fattened for the market on one acre of land." The next extract amounts to this:—"Do you think that on this last-named quantity, sufficient vegetable food, such as swedes, carrots, mangold, parsnips, cabbages, beans, peas, &c., could be raised, so as to enable one to vary their food; on which, with the purchase of meal, barley, &c., to rear and fatten thirty or forty pigs (as porkers or bacon hogs) in the year?" Again:—"Would you recommend in keeping so many, to keep a boar and a couple of breeding sows, or to purchase young pigs, at, say three or four months old," &c.

Now this opens up altogether a wide question, and we must confess that it is rather difficult, in the present state of matters, to throw a clear light upon it. Many misconceptions exist as to the relative *inherent* degrees of productiveness of various soils. One man, upon a *picked piece*, and by the application of every appliance, stimulants, &c., which science or ingenuity can suggest, manages to produce some forty to fifty tons of mangold on a statute acre, or his thirty tons of the swede. He forthwith writes a flaming pamphlet, showing that the rest of mankind are half a century behind. Scores of other people instantly take up the subject, and being in possession of their acre too, why not attempt it? for, according to the old saying, "what *has* been done, *can* be done again." But, alas, too many of the imitators have neither the texture, depth, condition, quality of soil, or skill, which the first experimenter possessed; and the consequence naturally is, a partial failure; and this, after other attempts, not unfrequently ends in a kind of antipathy to any advance. Thus are the solid facts of the case prejudiced or lost sight of.

We earnestly protest, however, against being thought desirous of cooling the ardour of those who would fain advance with the rest of society; advance both can and will be made as long as time endureth. We would merely caution those entering such interesting speculations, for such they may be fairly termed, from starting at too great a speed, and thus falling short at the other end. Neither in alluding to pamphleteers, is anything directed against any one in particular; for to tell the simple truth, we have not any one in our mind's eye at present.

And now to the point—*Pigs more profitable than Cows on a limited plot*.—As for this, we do not suppose that any one would think of keeping cows on such a plot without pigs. In our opinion, if any two kinds of animals are more fitted to class together for economic purposes than others, it is the cow and the pig. By careful management, the swine may be made to eat the cow's leavings, for there is generally some refuse too good to waste. And again, to what better purpose can the ordinary swill from churnings, &c., be applied, or what better as part diet for the pigs? Moreover, we hold it

as good doctrine, that when a variety of crops is to be grown, the midden cannot contain too great a variety of manurial matters. However, the question of labour, or convenience, may press on this portion of the subject, and that will at once alter its phase.

There are three or four distinct classes of pig feeders, each of which pursues a different economy, based either on their respective views of pig management, or on circumstances over which they possess but little control. These are, the amateur's class, the farmer's, and the cottager's. By amateur, is intended that class which live for the most part in little villas, or small houses, generally near a town; persons, for the most part, living pretty well at ease; and it need scarcely be observed, that from a well-stocked larder proceeds a very superior "swill" for the pig. The ordinary farmer, of course, for the most part, keeps some cows; he grows root crops for stock in general, and has frequently some inferior samples of grain unfit for market, which may bring an extra allowance to the swine. As for the cottager, his wife makes up by indefatigable attention, what is wanting in richness of food, and, in this part of the country at least, takes care that what meat she does possess is given cooked and warm. All her potato parings, and those of other roots, are most assiduously collected, and some equivalent is given to neighbours, who do not keep a pig, for what they can scrape together of similar materials. The cottage "swill," too, a material not so rich by any means as turtle soup at a city dinner, is strictly preserved; and, added to this, a warm and dry bed; the last item by far more sedulously attended to than by the farmer, although the latter is so much richer in material, with a midden depending on its liberal use.

There are those who feed pigs systematically for market, in numerous quantities, without possessing much land; and from such our correspondent, "A. B., of Liverpool," might get a valuable lesson.

In casting the eye over these classes, and the means within reach of each of them, we think it will be seen at a glimpse that the farmer has the most means within his reach; and we do think, that whatever be the result of pig-feeding as carried out by the farmer, he is in a position to produce pork, or bacon, some twenty per cent. cheaper than the other classes. Be it remembered, too, that the grunting tribe are amongst the best manure makers we possess; and surely nobody will gainsay the idea that much profit attaches to the making of manure, whether used on the spot or not, especially if the swine proprietor has land.

We must come now to our correspondent's inquiry, as to whether thirty or forty porkers, or bacon hogs, can be reared and fattened on a statute acre of land? This is put so loosely, and so much in the lump (if we may use the term), that we answer, at once, yes, on a quarter that extent, if you are prepared to run up a heavy account with your miller. This correspondent's meaning, no doubt, is, how much swine will an acre of roots, &c., sustain, using, in addition, as much meal as will best subserve the end in view. This question assumes a more tangible form, and the first thing to be ascertained is, what amount, as a good fair average, may be expected of our chief roots by a high system of culture. We think that they may be put, for argument's sake, as follows:—

Mangold, good deep soil, high cultured	..	35 tons.
Swedes	"	.. 30 "
Norfolk Turnips	"	.. 35 "
Parsnips	"	.. 20 "
Carrots	"	.. 25 "

This is supposing the ground is root-cropped every year, manuring heavily, ploughing or digging deep, securing a good tilth, and following up high root culture all the summer. Potatoes we have left out; they are as yet too precarious as a cattle crop. As to the question of *mixed cropping* (which practice is, indeed, capable of great things), we have left it purposely out, as calculations based thereon are apt to be exceedingly fallacious. Grain crops, too, or pulse, although forming at times useful rotation crops, must, we fear, be set aside. Where high culture, with root-crops, is intended, and the cultivator is, as the Yankees would say, "right down in earnest," he must get other folks to grow his grain—his acre will have other work to do. If any man doubts the possibility of continuing green, or root-crops, on a given plot, without the intervention of grain or pulse, let him take a lesson from the London market-gardeners; let him call on Mr. Fitch, at Fulham, and ask how many years his land has produced astonishing crops of vegetables, without the intervention of grain crops or pasture.

I have myself grown mangold fifteen years following on the same plot, and the latter part of the time quite as fine, or perhaps finer, than the first; so much for the exhaustion of soils. Mangold, of all these crops, seems the most eligible; it is the heaviest cropper, and the best keeper; it will keep well the year round, or very nearly so. Now thirty-five tons of mangold, is certainly a goodly stock of roots to carry on with (admitting that they will keep the year round, for argument's sake—and we have a root before us now, of 1850, which looks as fresh almost as when taken up); we have here above two hundred pounds per day of roots available to carry out a system.

But here a slight difficulty presents itself in "A. B.'s" inquiries. He talks of two breeding sows, a boar, &c., and then of porkers, bacon hogs, &c. Now all these extras compromise a regular system of store pig-feeding, and so darken the subject that no clear calculation can be made. It may here be observed, that strong store pigs, of about eight months old, would consume some twenty or thirty pounds per day, with the addition of a little bran, or some equivalent, in the shape of what is termed "dry food," whilst feeding hogs would consume nearly half a score pounds more of the roots, and the addition of some good meal to thicken the whole. All this, we are supposing, *cooked*—placing the affair independent of any other appliances; still, it must not be forgotten that there would be the mangold, or other root tops to consume, the house swill, &c. We are not discussing the question which is the best diet, or we should begin to talk of peas, barley meal, &c.

Space will not permit us to follow this discussion much farther at present, but we must beg to offer a few remarks on some other features in the queries. "A. B." talks of a couple of breeding sows and a boar. Now the latter is an expensive animal to keep certainly, and would help to derange the simplicity of a regular feeding system; still, if persons, circumstanced as "A. B.," would secure one of capital blood, say Fisher Hobbs' breed, and was situate near numerous pig breeders, such might be made to pay for itself and something more.

As for breeding sows, it would certainly not be advisable, under a speculation of this kind, to depend on purchases, although both selling and buying must be had recourse to occasionally. "A. B." should, therefore, at least, begin with a good breeding sow—one coming forward for a second litter; and when once he has got established by system, we should say, as soon as the litter of pigs is rid of, fatten the sow; such hogs feed with great facility, and make first-rate bacon. To do this, he must, of course, provide a regular succession.

We have now, at least, glanced at, and examined most of "A. B.'s" points, and answered them to the best of our judgment; if it fall short of "A. B.'s" expectations, we shall be sorry; and the only apology is, that "A. B.'s" string of questions are not very easily answered in such a way as to carry off-hand conviction. Other correspondents, whose cases are not *precisely similar* to "A. B.'s," will surely pardon us for placing him in "the forefront of the battle." And to our allotment friends an apology is due, for betaking ourselves to such swinish ideas; to such we can only say, take care of your roots, dig deep, ridge your spare ground, drain well stagnant soils, as soon as you can; lay down good plans

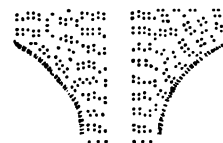
for the ensuing year, and then eat your Christmas pudding with a thankful heart.

ROBERT ERRINGTON.

APIARIAN'S CALENDAR—DECEMBER.

By J. H. Payne, Esq., Author of "The Bee-keeper's Guide."

Our *Stocks* will require but little attention during this month beyond cleaning the floor-boards, and seeing that there is neither damp nor mould in the hives; and if the floor-boards are observed to be quite dry, it will be a pretty sure indication that all is right within. Stopping up, however, must not be forgotten when snow lies upon the ground, if the bees are so placed that the sun shines upon their hives. Shading during the winter months is practised by many persons, and is a very good plan; but when we come to have all our bees placed in the north, it will be rendered unnecessary. An intelligent cottager (and one who has been a subscriber to THE COTTAGE GARDENER from its commencement) brought me a very ingeniously contrived little apparatus for preventing the sun's rays in winter inducing the bees to come out, and at the same time preventing the cold winds from blowing into the hives; it is a piece of three-quarter-inch deal, three inches wide, and two-and-a-half long, reduced at one end (not in thickness) so as to fit in the mouth of the hive, and then with a gouge the under side is hollowed out for about two inches in length, and five-eighths-of-an-inch in breadth, in a straight line with the entrance of the hive; another hollow of the same dimensions is then made intersecting at right angles the one already made, so that if the hive faces the south, the bees come out east and west. The under side has this appearance. Care, however, must be taken that this little contrivance is not pushed into the hive beyond the thickness of the straw, and it must also be remembered that it will require to be taken out occasionally to brush away the dead bees that may accumulate inside, or the passage may become blocked up, and the health of the stock endangered.



SHALLOW HIVES.—I am more and more convinced, by every year's experience, that bees do much better in *shallow* than in deep hives, and am now come to the determination of altering the form of my Improved Cottage Hives for sending out next spring, from nine inches deep and twelve wide, which they now are, to seven inches deep and fourteen wide.

STRAW HIVE WITH BARS.—I also think of having made a cheap cottage hive of straw, fitted with bars, and adapted for working either one large glass, or three smaller ones, the exact dimensions of which I have not yet decided upon; the bars in this case will not be so much intended to deprive the stock of its honey (for that will be done by storifying), as for the purpose of securing a more ready method of renewing the combs when necessary; the hive will be very simple, and very cheap, so as to be obtained by any cottager; I shall not even incur the expense of a hoop at bottom, for I have one of a similar kind in my apiary at the present time, which has stood all weathers for upwards of twenty years with only the protection of a milk-pan, and for aught I can see will stand for twenty more. The floor-board, I should observe, is only the exact size of the hive, with a lip, or projection, at the entrance; this tends very much to the preservation of the hive, as well as to the health of the stock in winter, the drip from the cover falling quite clear of the floor-board. It would be well in all cases to adopt this plan; for it would in a great measure prevent the hives from dampness and decay.

BREEDING.—Breeding appears to have been going on much later this autumn than is usual, for I have observed some of my stocks carrying in pollen almost as abundantly as in May, and that not from the ivy, which affords both honey and pollen in abundance, but from the late-sown mustard, which the colour of the bees' loads indicates; and this unusual circumstance is not confined to this locality, for I have heard of the same thing very recently from places far distant.

YORKSHIRE HONEY.—I have just received a specimen of

honey in the comb, from the moors in Yorkshire, of most excellent quality. It is perfectly transparent, very thick, and its colour a bright orange—in flavour it very much resembles the finest orange marmalade; perhaps some of our bee-keeping readers in that locality will be kind enough to tell us what plant it is that imparts this peculiarly fine flavour to the honey.

HINTS TO COTTAGERS ON THE MANAGEMENT OF PIGS.

As a source of sustenance and emolument to the cottager, the pig is only second in importance to the cow, its flesh being greatly conducive to the support of human life in the laborious state, and it has been remarked that the sight of a couple of slices of bacon upon the rack, tends more to keep a man from poaching and stealing than whole volumes of penal statutes. They are great softeners of the temper, and promoters of domestic harmony.

There are several varieties of pigs, but these signify but little to the cottager. The best advice we can give him is to choose the best in his neighbourhood, for the best is generally the most economical. Breeding sows do not generally answer the cottager's purpose so well as to buy a couple of pigs of about three to four months old, on account of the want of accommodation; but whenever he has room, a breeding-sow is decidedly the most profitable.

The first thing for consideration is the house or sty, for unless you have a place to lodge him in, it is of no use to think of a pig; any man of common ability can knock up a pig-sty. It should, if possible, be in some well-sheltered spot, and with its front to the south or west. It should consist of two compartments, a sleeping room well-roofed in, and a yard not covered, but exposed to the weather, the one opening into the other. With reference to the floors for the sleeping rooms of the breeding-sows, opinions are much divided, some contending for wooden floors as being warm for the pigs when young and delicate, and others for floors made of brick, thinking that the advantage that is gained in point of warmth, is fully counterbalanced by the following objections. In the first place, wood very soon rots if laid on the earth, and if, on the other hand, it be raised from the ground, it only leaves a space for the dung to accumulate, which will find its way through the crevices of the boards, and makes a harbour for the rats; all I can say is, if wood is more easily to be obtained than bricks, then use wood; if, on the other hand, bricks are most convenient, then use bricks. The sleeping room of our breeding-sty is paved with bricks, and we have never yet found any inconvenience arise from it; whilst, on the other hand, a former one was boarded, the boards being raised from the ground (certainly it was very badly made), and we did find much inconvenience. But the warmth on the side of boards certainly ought to be a great matter for consideration, and I should think they would answer very well, if a concrete surface were first made, and the boards laid on it. The sleeping room should be on the same level as the outer compartment, not with a step up into the bed-room as I have seen them, as if the young pigs get out, they cannot get up this step again.

Perhaps it may save some people trouble who wish to build a sty, if I give the proportions; as to telling a man how to build one, this cannot be necessary, for if he cannot knock up a pig-sty, he certainly is not fit to keep a pig.

Breeding-sty.—Width in front and back, 7 ft.; length of sides, 8½ ft.; height in front, 5 ft.; length of yard, 10 ft.; width of door from the inner compartment to the outer, 20 in.; height of same, 4 ft.; ditto back, 3 ft.; width same as sty.

The sty for fattening pigs may be much smaller according to the convenience you have—they want very little room. An excellent warm roofing may be made of the "Patent felt roofing," which is sold for 1d. the square foot; the only thing it wants to keep it in order is to tar it every spring—in fact this should be done to all the sty outside, to make it look nice and to preserve the wood.

The floor of the sty should be made to slope in some particular direction, that the moisture may run off; the outer court should also be well paved with bricks, or large flat stones

evenly laid, also sloping in the same direction as the bed-room; the sty should be kept very clean, well-washed down occasionally, and the litter being well-shaken up, the sty should be swept out clean every morning and evening. If straw manure is proportionately more valuable than straw, then both the bed-room and outer room should be littered with straw; but if, on the other hand, straw is proportionately more valuable than manure, then only the sleeping room need be littered.

The troughs are best made of iron, but good, strong wooden ones are easily made, and cost little, while iron troughs are very expensive. The wooden ones should be bound with iron, to prevent the pigs gnawing them. They should also be fastened, to prevent their knocking them out of their places, and divided into compartments by bars nailed strongly across the tops, at such distances as to allow the pigs to put their heads in, but not their legs—this prevents great waste of food. For this purpose also a board should be fastened in a slanting direction to the back of the trough, so that when they root the food out with their snouts, which they are very fond of doing, it will run back again into the trough, instead of being wasted on the ground.

I must yet again refer to the necessity for cleanliness. It is a most foolish and mistaken notion to suppose that pigs are naturally dirty*, they love to be kept clean, and a pig that has been washed once or twice, will like it as much as any human being. Let us then beseech all pig-keepers, under whose eyes these pages may come, to preserve the sty in the most dry and clean condition possible, to change the straw frequently, and to brush the pig's skin regularly.

If you make up your mind to keep a sow, by all means let me advise you not to "buy a pig in a poke." Choose a sow of a good shape, ample bellied, with a short neck and snout, and the full number of teats, thirteen or fourteen, and altogether of good-looking appearance. Your best way will be to buy one about three or four months old, which will cost about 15s., and keep her till she is the proper age, the nearer twelve months the better. By all means give her a name; you may laugh, and say what is the good of this, but you will find it is of use; the tamer and quieter a pig is, and the more she knows you, the better mother she is likely to be. By all means keep her well and clean, no starving, no fattening, but let her be in good condition. Take care always to get the best boar in the neighbourhood, and depend upon it your pigs will always sell well. Try and "get a name" for your pigs. Let it be said, "I would rather pay a shilling or two more for so and so's pigs, because I know they will do well; his are always nice pigs, and I know they will do better than any body else's." When a cottager has such a sow, he may begin to be proud of her, and his only difficulty will be to have pigs enough to supply the demand. But now he must not begin to think too much of them, and because there is a demand for them, charge a high price; ask a good, reasonable price, and stick to it, never take a farthing over or under, so that when your neighbours come to buy, they may know what they have to pay, and let them know, if they do not like to pay that price, they may stay away.

But above all things keep both her and her family clean; the best pigs in the world never look so nice when they are begrimed with mud and dirt, as when they are clean. I cannot say too much on this point; let me turn where I will, I nearly always see the pigs put in some dirty hole, the dung not cleared out for weeks together, and their skin so covered with dirt and scurf, that it seems impossible for them ever to grow—but grow they do, you will say, and many a nice piece of pork I have eaten that came from a pig kept in a dirty sty—so you may; but that pork would have tasted twenty times nicer if it had been kept clean, and would have been ready a month or six weeks sooner.

W. H. W.

(To be Continued.)

DUTCH MODE OF LETTUCE-FORCING.

THE Dutch sow the seed of the *White German Cabbage Lettuce*, from the beginning of September to the first week in October, for the purpose of producing this variety in cold

* I certainly advise all who can afford it, to buy Youatt on the Pig; it is 7s. 6d. I think. Published by Cradock. [A shilling book—Richardson on the Pig, is also excellent. Ed. C. G.]

* If you have a tank to catch it in, so much the better.

frames during the months of December, January, and February. The soil put in the frame is fine leaf-mould, which they cover six inches thick with a deposit dredged from the bottom of the Haarlem Lake. This deposit is decayed vegetable matter, almost black, and has the appearance of very coarse black rappee snuff. I am satisfied, however, that the remains of a melon or cucumber-bed would answer the same purpose. The light of the frame is covered with oiled whitey-brown paper, though glass does as well. The lettuce-plants are put one foot apart each way, and have air given to them when the weather is dry and fine. Of course there are always some little attentions which discerning gardeners are well acquainted with as regards the treatment of plants in general, and which are dependant on locality and weather. If frosty, protect by a mat, or litter, &c. No bottom-heat is given beyond a layer of dead leaves a foot-and-a-half thick, which is put about 2 feet below the surface. In this way, as nearly as possible, the finest lettuces are produced. I import the *White German Cabbage Lettuce* every year.—T. LOCKHART, 84, Fleet-street.

RASPBERRIES.

I CAN confirm all Mr. Errington has said on the *Falstoffs Raspberry*, at page 12, having for some years found it to be the best red one grown; and to those of your readers who have not yet possessed themselves of it, I strongly advise them to do so at once. I do not know of any new variety of fruit ever sent out that was so much superior to existing kinds as this raspberry is in so many points—not the least valuable being the property it has of continuing to bear good, large, useful fruit, long after the main crop is gathered. With me it continued bearing until the autumn-fruiting one came in, about the beginning of September; and it was not a solitary fruit here and there, but often a good number on a plant.

The *Autumn bearing*, which I presume to be the same Mr. Errington calls the "double bearing," is also a good and useful fruit, and, in some situations, the most prolific kind grown. With me it has been loaded with ripe fruit from the beginning of September, until the severe frosts of the 3rd and 4th of November checked it, and, I verily believe, had we not had these frosts, it would have continued to furnish a good supply up to Christmas. Mr. Errington's remarks on its habits are quite right; it requires room, and does best in a single row by itself; mine are growing by the side of a walk, and have received but little attention in the way of summer training, but the graceful appearance its shoots have, loaded as they are with fruit in the various stages from the just-expanded blossom up to the ripe fruit, gives it a very interesting appearance, so that every one who has seen them, has been so convinced of their utility, that I expect they will be more extensively grown than formerly; the fruit is medium sized, but, of course, the flavour decreases as the season advances, otherwise in September it is pretty good. I only wish we had anything in the strawberry way suitable for autumn purposes, that could be compared to it; I mean a fruit that would bear as much resemblance to those we have in July, as this raspberry does to its compeers at that favoured time. Such a fruit would be an acquisition; but we must not despair, this raspberry was not known some years ago, and we hope some enthusiastic admirer of Pomona will direct his skill to such a successful issue, as to furnish us with so desirable an addition to our gardens.

S. N. V.

TRANSACTIONS IN THE HEN-YARD—DECEMBER.

DUCKS may be kept almost anywhere, with little trouble, but not, I am afraid, in all places at small expense; at least in this I give the result of my own experience. They are curious, hungry, dirty things; they waddle about, and crave for food, robbing the other poultry, and making every place dirty, in a manner quite peculiar to themselves. They will live and fatten without the use of a pond, but there is little doubt they do better and are more profitable to their owners, when they can have access to water. Where they have a pond, they pick up a great deal of food for themselves, which, of course, saves the pockets of those who pay for the corn and meal; but I can, at the same time, pronounce

from experience that ducks may be kept, will thrive, lay abundantly, and raise ducklings, which will prove exceedingly delicate for the table, when supplied with only a good tub of water instead of a pond.

I believe the kinds of ducks generally kept for domestic purposes are the Aylesbury, the Rouen, and the common sort. From my own experience, I consider the Aylesbury the best; they are large and perfectly white, with light bill and yellow legs; they lay well, the eggs are large, with white shells, and the ducks make excellent sitters and mothers; they are also very good for the table. On first buying, the Aylesbury ducks are dearer than the common sorts; I have bought very good for four shillings each, and I have been asked as much as eight; good common ducks may, I believe, be had for half-a-crown each.

About the time when the ducks should begin to lay, I have them shut in at night, as they often have a great inclination to lay astray; but when they once become accustomed to lay in one place, they will keep constant to it; then, therefore, I leave them at full liberty to run out early in the morning, and seek their favourite animal food. In the morning I give them a good pan of porridge, made with the meal called middlings and crushed barley, mixed together; in the evening, they have oats thrown into a pan of water. While the ducklings are young, they are fed more frequently; they are very fond of boiled white cabbage chopped with their food, and will eat raw lettuce greedily; in fact, there are few things which ducks will not eat with a good appetite. They usually commence laying early in the year, and when I have reason to think them idle in this respect, I submit them to the same treatment which my hens receive; that is, I have the food given to them warm every morning for a week, a fortnight, or until they begin to lay.

I say, decidedly, allow the ducks to sit and hatch their own progeny; do not employ the services of a hen for that purpose; for with a small hen the large duck's eggs will be starved by insufficient warmth, and the services of a large, fine, fat hen, are generally too valuable to be spared from the more congenial task of hatching chickens. I have seen it observed by many authors, often, I believe, repeating from each other, that an old duck will do little in defence of her young ones, but I do not agree with this, and can only say I have had many a good bite from the mother duck, as a punishment for venturing to touch a member of her little family. If you wish for plenty of eggs in preference to ducklings, let the eggs be collected every morning; if, on the contrary, you would like the duck to sit, allow her to collect her eggs herself for the purpose. If you are fearful that the eggs will not keep in the nest, remove those which are fresh laid, but leave a sufficient number of nest eggs to deceive the duck into the belief that she is collecting for herself, and after a time she will commence sitting, when it will be easy, at her feeding time, to change the stale eggs for fresh.

The ground is the best locality for a duck's nest, and perhaps the corner of the duck's-house may be the safest place, although I have known large broods of fine ducklings hatched out of doors. Give the duck a good supply of straw, and she will make a beautiful nest for herself; when she has formed it, thrust a good handful of hay into a corner within reach of her bill; this she will use to cover her eggs when she leaves her nest to feed. Take care that she is supplied with corn and water whenever she leaves her nest to seek it, and she will be pretty sure to go on well.

I have heard many persons complain of bad success with their sitting ducks. I believe this generally arises from the duck being fidgetty and inconstant during the first two or three days of sitting. The drake, unwilling to lose the company of his companion, thrusts his head in at the door of the house, and calls her forth with his affectionate guttural, and the duck listens to his call, and in the pleasure of his company forgets her eggs for hours together; for this reason I watch her for the first few days when she comes off to feed, and drive her back to her nest when she has been off long enough, taking care to do so gently, not to excite her jealousy, for if she turns cross she will, very likely, break some of her eggs. When once well settled to the nest I find them excellent sitters, hardly allowing themselves time to feed. The day four weeks, or one, or sometimes even two days later, the little ducklings make their

appearance; when there is reason to think that several are hatched, it is better to remove them from the nest, for they are large, active things as soon as hatched, and will deprive the remaining eggs of the mother's warmth. Ducks are very cross while sitting, and will snap at any hand that approaches; let one person lift her off by the neck, while another removes her little ones. If she has been long without eating, place corn and water before her, and let her go back to her nest as soon as she likes. I do not think ducks the phlegmatic animals they are generally represented; on the contrary they are much attached to each other, and very fond of their young ones; and the drake is an affectionate, gallant fellow, who takes no unkind notice of the young members of his family.

ANSTER BONN.

PHYSALIS EDULIS.

LAST year one of your correspondents asked where he could get seeds of the *Physalis edulis*. As they are not in the list even of Carter, I made a memorandum to save a few this year, and now enclose them. Should you know who the correspondent is, and think it worth the trouble, you can send them on. But pray keep my name quiet, or I shall have a host of correspondents myself.

The finest fruit I ever saw were at Ootacamund, or the Neilgherry hills, where the plant is completely naturalized. The town is about 7500 feet above sea level. Winter just without frost, so that all Cape plants live out of doors, but summer never brings the hot weather we have here in England. From these data I thought that the plant might do very well in the open quarters of an ordinary kitchen-garden, and so it did, as far as temperature is concerned, but the huge roots made the plants run to leaf.

The great point in its culture is starvation. A plant in a five or six inch pot plunged in the ground does well. If not in pot, I should recommend the same treatment as Mr. Errington recommends (COTTAGE GARDENER, p. 353, Sept. last) for that nearly allied plant, the Tomato.

In the autumn I destroy the old plants, and keep rooted cuttings through the winter under glass without heat. I do not know whether it arises from the plants being older and stronger, but I fancy I never tasted any fruit produced in England so good as that on the Neilgherries. The plant is found in the warmer parts of India, but there also the flavour is inferior. Boiled with sugar it forms one of the most delicious preserves I know.

GEO. SPARKES.

[If the correspondent alluded to will send us his direction, we will forward to him the seeds Mr. Sparkes has so obligingly enclosed.—ED. C. G.]

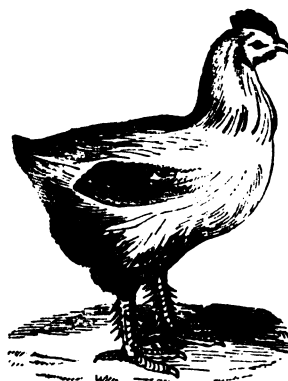
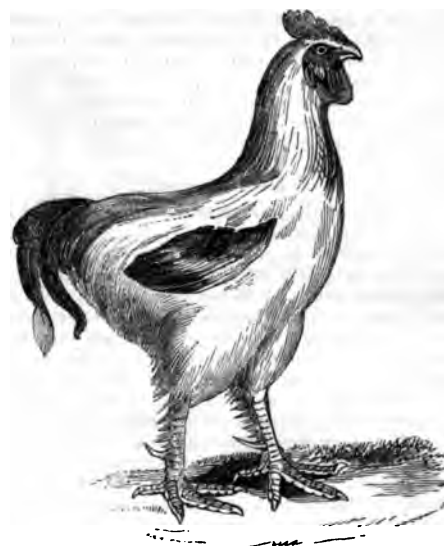
COCHIN CHINA FOWLS.

As so much interest at the present time exists regarding the true breed of Cochin China fowls, and so great a desire to obtain them on the part of every person at all fond of rearing poultry, myself amongst the rest, that I was induced, a short time since, to visit Mr. Punchard, of Blunts Hall, Haverhill, Suffolk, who, it may be remembered, obtained three silver medals for specimens of this truly magnificent breed of fowls, at the Midland Counties Exhibition last year; and, indeed, I was highly gratified with the sight of his poultry, as well as with the good style in which they are kept. Their size is extraordinary, some of the cockerels weighing from nine to ten pounds-and-a-half as they run in the yard, and I must confess that I never before had seen a true-bred Cochin China fowl, although I have taken much pains to do so.

Mr. Punchard, I find, kept 35 store hens through the winter, and he had, when I visited him, upwards of 500 chickens hatched this year. He also kindly showed me the egg account in his manager's book, which, from the first of January to the end of September, amounted to no less than 4158.

The pains which Mr. Punchard has taken to improve the stock, by selecting the best specimens for breeders, does him much credit, and justly merits the thanks of every lover of poultry in the kingdom. He assures me that they are good sitters and mothers, and that they lay within two or three weeks after having produced chickens. They are also the

tamest and most docile fowl I ever met with, and are easily confined to the place intended for them; this I can speak to from my own experience, for my fence does not exceed three feet in height, and they have never attempted to pass over it. And for the table, I can also speak to their excellence; they are far superior in flavour to any fowl I have met with, something resembling pheasant; their eggs, too, are particularly fine-flavoured. It appears there are two kinds of Cochin China fowls: the square built variety, those I am speaking of, which are the greatest favourites, and also very rare; and those which slightly resemble the Malay, and which have already been figured at page 172, vol. iii., of THE COTTAGE GARDENER.—J. H. PAYNE.



[The portraits given in our third volume, though of birds from Cochin China, are, we believe, a cross between the true fowls of that country and the Malay variety. Of the true, and, as Mr. Payne graphically describes them, "the square-built variety," we now present to our readers two drawings, copied from those in the *Journal of the Royal Agricultural Society*, and which Mr. Trotter, the writer of the prize essay on poultry management, considers "the best specimens of Cochin China fowls of the day." They are the favourite kind bred by Mr. Punchard.—ED. C. G.]

HOME WINE MAKING.

UNDER this head I purpose giving a few directions for the manufacture of some of the more usual English wines; but I would first repeat, that no receipt can in itself ensure good wine: the various stages of the process of fermentation must be carefully conducted, or it matters little what fruit forms the basis, or in what quantities the various ingredients are used.

In the following directions, Roberts's Saccharometer is supposed to be used in ascertaining the specific gravities during the process; and as the first step necessary is to ascertain, whatever may be the fruit, the specific gravity of its juice (for according to the greater or less gravity of this juice, less or more sugar must be added to bring it up to the required standard), I think I cannot do better than quote from Mr. Robert's "British Wine Maker" a table of the various gravities of the expressed juice of several of our English fruits:—

"Ripe grapes, about 70; half-ripe, 45; red currants, 53; white, 52; black, 52; gooseberries two-thirds ripe, 53; elderberries, 56; mulberries, 50; juice of the rhubarb stalk, 15; 1 lb. of parsnips, boiled in one gallon of water for two hours, 15; one pound of sugar in one gallon of water, 36." All these gravities were noted at the temperature of 60° Fahrenheit, and to them I may add—Apple juice as it runs from the press, 55. From various trials made this season I found it vary in different samples from 50 to 60: the highest gravity was observed but in one instance. With these preliminary observations I will now proceed to

WINE FROM RIPE GRAPES.

This wine claims the first place on my list, inasmuch as in no other fruit have we naturally the necessary constituents of wine. Fifteen to twenty pounds of grapes should be used to each gallon of water. The grapes should be carefully picked from the stalk, and all damaged berries rejected. They should be bruised *with the hand*, and well mixed with the water, and allowed to remain steeped in it for a few days, the mass being well stirred twice or three times daily. The liquor should then be strained, the husks being pressed; but care should be taken not to crush the seeds, as they might impart a rough, unpleasant flavour.

The gravity of this liquor should now be ascertained by the Saccharometer, and sugar added sufficient to bring it up to about 120 (24 on Roberts's scale). It is probable that two pounds per gallon will be required, but of course this will depend on the ripeness of the fruit used, and the dryness and heat of the preceding summer: the riper the grapes the higher the gravity of their juice, and consequently the less sugar required to bring it up to the necessary richness. It is this uncertainty that renders the strict accordance with the letter of any receipt—ordering so much sugar and so much fruit to every gallon of water—liable to produce very differing results in different years. The fermentation should be proceeded with precisely as directed for rhubarb wine; but it must be remembered that as the season at which this wine was made has become advanced, the operation should be conducted in a room artificially warmed, and kept at a temperature of about 60°.

The final gravity of the wine before bottling should be about 35, or, if it be intended as a dry wine, even as low as 20. In the former case, the wine should be bottled in March, and in champagne bottles; in the latter case, two years in the cask will greatly improve and mellow the wine.

WINE FROM UNRIPE GRAPES

May be made in the same manner, the only difference being in the increased quantity of sugar, the proportion required being indicated by the saccharometer, it being remembered that each pound of sugar will raise the gravity about 36. Wine made from unripe or partially ripe grapes is not deficient in flavour, and has much the character of hock.

WINE FROM GRAPE-VINE PRUNINGS

May be made of an excellent quality. As chemical analysis proves the young shoots and leaves of the vine to be exactly similar in their composition to the immature fruit, so, by infusing them in boiling water, letting them steep for several days, using the same weights as in the case of fruit, and adding sugar as indicated by the saccharometer, together with a little argol as in rhubarb wine, a well-flavoured wine may be produced. I made a small cask in 1849 from half such prunings, and half rhubarb stalks, and I believe it will prove a good wine. Of course it requires more sugar, and is so far more expensive; but it should be borne in mind, that the cost of the sugar is the cost of the wine, and it—the sugar—will perhaps average about three pounds to the

gallon. Mr. Roberts says that this wine, made from vine-leaves and prunings, "is highly prized, and does not appear to be so decidedly a domestic wine as most of those made in this country, resembling in flavour more the foreign wine."

I have no practical experience of the quality of such wine, but I have no doubt it would well repay the trouble of making, should any of your readers like to try the experiment about next June or July, and would feel their way, as it were, step by step, with the saccharometer; and, lest any should think that I revert too often to this little instrument, and lay too much stress upon the scientific conduct of the fermentation, I will quote, as an appropriate conclusion to this paper, a passage from Dr. Mac Culloch:—"But let me inculcate, that the wine is not made when the ingredients are introduced into the vessel. It is then that the labour begins, and nothing but care and attention to every part of the subsequent processes can ensure satisfaction, or produce valuable results."—HENRY W. LIVETT.

THE DOMESTIC PIGEON.

(Continued from page 76.)

THE AVIARY.

THE aviary is intended for lodging birds that are much more domesticated, and better accustomed to confinement and its inconveniences. It does not require, like the dovecot, to be built away from the house, but any convenient place will do, as a yard, or garden, or even a fowl-yard, provided it is not exposed to the cold north wind, though it would be better if facing the east or south, and especially if the light can be admitted on those sides. In large towns it may be constructed on a roof or terrace, and even in a granary.

The aviary should be square; the height proportionable to its width. Its total size must be regulated by the number of pairs intended to be placed in it. It would be necessary, for example, to make an aviary eight feet square, if required to contain eight pairs; if it is sixteen feet long, by eight wide, we may lodge sixteen pairs there, and thus proportionably. We may calculate, whatever shape we choose to make our building, on eight square feet to a couple of birds. The more we increase the number in a given space, the more quarrels, and battles, and racket, and broken eggs we shall have.

There are several methods made use of in constructing the birds' nests, but all are not equally good. Some persons have small holes built in their aviary: this plan is the worst of all, and only does for the dovecot stock-dove. Others construct boxes on shelves, about ten inches deep by eight wide, and furnish them with a nest of plaster, or a basket. The fault of these boxes is that they are too small, and easily imbihe the dung, which soon accumulates and heats, and throws out a fetid smell injurious to young pigeons. Wicker baskets, placed on a slight wooden framework, are also very much used; but they are still more inconvenient here than in the dovecot. If the aviary is built according to the agreement of sixteen square feet, the best form of nests is to fix all round a shelf formed of a substantial plank eighteen inches wide, fixed on brackets or arms let into the wall; they may also be placed loosely in grooves, for the convenience of taking them down to clean them. Twenty-two inches above this shelf we place a second, then a third at the same distance, if we wish for two rows of nests—a fourth, if we would have three on these shelves. Place small vertical planks, to form separate boxes; they should be three feet apart, so as to give this space to each little habitation. Place the divisions of the upper boxes over the middle of the lower boxes. In front of each cell fix a window frame, furnished with a wire lattice, having in the middle an entrance, ten inches high and eight wide, provided with a door shutting by means of a wooden latch or iron hook. There should be a small plank in front of the door the width of the entrance, and extending eight or nine inches beyond it. This is indispensable for the pigeon to alight upon when it returns to its dwelling. It will be perceived, that when we advise not to place the divisions of the second row over the first, it is in order that the resting-places before the doors should not be over each other, that the pigeons, which are very fond of remaining there, may

not drop their dirt on to each other. The interior of each dwelling should be furnished with two nests of plaster, one on the right hand and the other on the left—nests of baked earth may be made use of. This manner of distributing an aviary is so much the more advantageous that each pair of pigeons is lodged by itself, without risk of being troubled by the others. When their dwellings are not closed, and independent one from the other, each male posts himself near his female while she is sitting, and not only will not allow other birds to approach, but he even prevents their sitting within four or five nests on each side of him. We have seen them furiously defend a whole row where they had established themselves. The result of this habit is quarrels and battles without end, the smallest inconvenience of which is that it produces confusion in the aviary. We may in these nests enclose one or two birds brought from another aviary, and there retain them prisoners until they have coupled and laid, and by this means accustom them to a change of residence without fear of losing them, or the annoyance of keeping the others prisoners.

In all cases the nests should be placed in the darkest part of the aviary, because pigeons always seek obscurity for laying and sitting; some persons, in constructing dwellings like those we have just described, add to them, for this reason, two small planks, one on each side, which shades the two plasters or nests. The walls of the aviary should be plastered and whitened with lime; they should be pierced with one or two windows, to admit a little light, without its being too strong. The flooring should be covered with a good inch of fine sand, on which the dung very soon becomes dry, and is easily removed every two or three days by means of a small rake with very close teeth, or a birch broom. The person who makes use of this last article must be careful to press very lightly on the sand, so as only to remove the surface. Those pigeons which inhabit a sanded aviary always have a clean and glossy plumage.

It would be advisable to divide the aviary into two or three separate compartments by lattice-work, if we wish to have all races of pigeons. The Pouters, Jacobins, Cavaliers, &c., might, in fighting with the others, receive in their swelled throats very dangerous blows; they should, therefore, be shut in one of the divisions of the pigeon-house. The large species, such as the Roman, &c., should be in another, and the small ones in a third. The less communication the races have with each other, the less amateurs will have to fear intermixtures.

We should take the precaution of always keeping several water-troughs in the aviary, and in a corner a little straw cut into pieces of two or three inches in length, so that the birds may find materials to construct a clean and convenient nest for their young ones. Some races entirely neglect this attention; they lay their eggs in an empty nest, which is frequently followed by the eggs being broken, or quickly becoming cold: the amateur will remedy this by himself placing a little straw in the nest. Others, on the contrary, collect such a quantity of twigs in it that they raise the nest much too high, which causes the eggs to roll out; in this case we must take out the superfluous quantity.

DESCRIPTIONS OF PIGEONS.

FIFTEENTH RACE.

SWALLOW PIGEONS (*Columba hirundinina*).—These birds have derived their name from their resemblance to the Sea Swallow (Peterel). The underneath part of the body, head, and neck are white; the upper part of the head, the covering of the wings, and the feathers of the thighs are black, red, blue, or yellow. They are feathered-footed, and the colours of the feathers on their feet are always like those of the cloak; the upper part of the head is also of the same colour, proceeding from and including the upper mandible of the beak, the colour passing towards the middle of the eye, and terminating at the under extremity of the skull, very much like that of the Tomtit, with a black head. They have a long body, like the Turtle-dove, but are much larger. They fly very well, and like to hover with rapidity to a very great height. If they have the same facility in flying that the swallow has, they have also the same difficulty in walking, and are still more ungraceful in this movement. The shortness of their feet, and the length of the feathers with

which they are covered, obliges them to advance heavily, and with constraint, by raising their feet slowly, and in an awkward manner. In wet climates and dirty dovecotes their feathers become loaded with dirt, and inconvenient. Besides this, they sometimes have the defect of a streaked iris, by a part of the white extending over it, which lessens their value in the estimate of amateurs. These pigeons ought not to have any black feather across the white, but the dealers, before offering them for sale, carefully cut them out with a pair of scissors. The amateur may easily avoid being deceived in this manner, by examining them attentively; if he finds any vacant places in the smoothness of their plumage, or if, by blowing them, he perceives the quills of cut feathers, there is no doubt of their toilette having been made.

COMMON SWALLOW PIGEON (*Columba hirundinina galeata*).—Naturalists have doubtless given it the name of *galeata* from



fancying they could see the form of a helmet in the spot on their head. The iris is yellow, or sandy; they are very much shod, and highly esteemed by the amateurs.

YELLOW SWALLOW PIGEON (*Columba hirundinina lutea*).—Resembling the preceding, but having those parts yellow which in the other are black, red, or blue. These birds are prolific.

SPECKLED SWALLOW PIGEON (*Columba hirundinina scintillata*).—This charming bird is extremely rare in France; it can scarcely be procured except in Germany, where even it is not common. Its cloak is fawn-colour, prettily speckled with black or red.

TO CORRESPONDENTS.

. We request that no one will write to the departmental writers of **THE COTTAGE GARDENER**. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of *The Cottage Gardener*, 2, Amen Corner, Paternoster Row, London.

CHEAP LITERATURE (*A Subscriber*).—Whoever sneers at you for any supposed deficiency, be assured is of superficial acquirements himself; for he who knows much is always the most conscious of how little he knows. If, in addition to **THE COTTAGE GARDENER**, you purchase *The Cottage Gardener's Dictionary*, you will have all you need upon the subjects of which they treat, and if you require information on the current literature and science of the day, take in the *Athenaeum*.

GAS STOVE (*L.*).—This is merely a common iron stove of any diameter required, with a circular row of jets of flame issuing from a coil of pipe within it, or from a common argand burner so placed, and with an iron instead of a glass tube round it. The fumes are carried away by an iron chimney passing through the roof or side of the house, and the burning gas is supplied with air by a small pipe communicating with the outer air, and passing into the stove at its bottom. Any gas-fitter knows what it is. Your other queries next week.

NAME OF INSECT (*Paul*).—You say you caught one of the insects which feeds on the leaves of your Roses and Clematis. Why did you not add that it is a small beetle, or what it is like?

NORTH BORDER (*E. D. B.*).—We intend to devote an article in the Kitchen-garden department to "north borders" and their various uses; but, in the meantime, you may plant a part of it with *Elton Strawberries*, which is a late kind, and being placed in such a situation tends to lengthen the season; as these ought to be planted immediately (if done this autumn), we at once reply to your query, but the uses of the remainder of the border will be treated of at length next week.

CEDAR OF LEBANON CONES (*L. B.*).—It is very questionable if there are any good seeds in the cones. We have sown a great many seeds

brought from the same trees on Mount Lebanon, but we never reared but one plant. Still, we like the associations connected with such gardening. Leave the cones as they are to the middle or end of March, then place them near a hot fire, and that will open the scales; but if not, the cones must be split into four quarters with a sharp tool, and then the scales may be separated to get at the seeds. Sow them in a shallow pit or pan, and merely cover the seeds; use light friable loam only, and give no water until the seedlings are well up. A close cold pit, or one with a very gentle heat, is the best place for them; but allow a free current of air if the seeds vegetate.

EVERGREEN SCREEN (Julius).—The best evergreen for a screen is the common laurel; and supposing your plants are a yard high, and the soil good, it will take nine or ten years to be as high as you require, twelve feet; but you may plant a row of spruce fir, twelve or fifteen, at once, and you may plant them so close that the bottom branches will meet. The spruce bears clipping much better than the laurel. None of the trees you name would suit you. It is not uncommon to see *Auriculas* and *Polyanthuses* in bloom in the borders at the end of a fine autumn.

COVER FOR VINE BORDER (C. K. G.).—Cover your vine border immediately merely to prevent it freezing; for this purpose nothing is so good as fresh tree leaves, although dry litter will do. A fortnight before you commence forcing, turn and mix a quantity of hot manure with the leaves, making them quite two feet deep, and thenceforward secure a heat of nearly 80° in the mass. Use fresh-cut leaves, well-sweated with dung beforehand, for your "breaking" inside. Put *Strawberries* in your second vinery directly; let them remain there until you put the sweating material in your early vinery, and then introduce them there, putting them within nine inches of the glass. Or, which would be better still, merely set them on the fermenting material (not plunged) for a fortnight previously to going on the shelf.

GERANIUMS FOR CONSERVATORY (Charley).—The back wall of a conservatory, eighteen feet high, with glass at front and one end only, will never grow any Geraniums to satisfaction more than for a year or two. The *Shrubland Scarlet* is the only one we should like to try, and if the back border is renewed with very good soil, it would reach the top in three or four years. It is an excellent place for *Cumelias*. Mr. Beaton has promised to give full lists of bedding Geraniums, &c., &c.

MARIE LOUISE PEAR (L.).—Some mismanagement in pruning the spurs along the main branches is the cause of the fruit being only produced at their extremities—a very common case—for which, and against such, Mr. Errington has written repeatedly. The best remedy now, is to select a medium-sized shoot of last season's growth, here and there, and train them in at full length between the main branches, then to spur in the rest of the growth on the spurs, and next season to attend to the stopping of all the new growths as soon as they are a few inches long. The vases made of stone-coloured Elizabethan chimney-pots will look well on the lawn; plant them with any of the dwarf Scarlet Geraniums, or with *Calceolarias*, or, indeed, mixtures, as for beds, but no plant is more suitable for such vases as yours than the dwarf Geraniums.

FUCHSIAS (W. D. Paine).—"Would it be improper to prune my Fuchsias, before putting them to rest for the winter, under my greenhouse stage?" No—if the wood is well matured, and the most of the leaves fallen. Yes—if the leaves are still on, and the wood rather soft. In that case, considering the season of the year, we would prefer doing it as soon as vegetation commenced in spring. Those to bloom early should be pruned and rested early.

HEATHS (S. W.).—Those finishing flowering as late as the beginning of October, should be pruned then, and treated as you proposed. Those finishing flowering at a later period, we would not finally thin and prune until February and March.

WIREWORM (Ibid).—Soot and salt they do not like. We have succeeded best in trapping them with slices of turnips, potatoes, &c., the numbers in a morning, at times, was "prodigious." What say our other correspondents?

POTATOES (Ibid).—If your land is light, plant now; if heavy, early in spring. The calendar, though short, yet being given at the end of the preceding month, ought, so far as remedy is concerned, to meet your wishes on a small scale.

TACSONIA (J. A.).—The plant was too young to flower this summer; it is now fifteen feet, outside, and in a box, and you have a greenhouse. Reduce it to five feet, and place the box under the greenhouse stage, and nail the stump against the back wall, to keep it out of harm's way; it requires no light. If your box is two feet long, a foot wide, and a foot or eighteen inches deep, it will afford enough room for the Tacsonia for the next five or six years, and that is an excellent way to manage it. You may cut off every leaf, and reduce the youngest wood every autumn, and save it as above, with no trouble at all; but it will require abundance of water, and strong water too, every summer. We shall be most happy to receive your account of putting up your greenhouse for less than five pounds; but give its full extent, quantity of glass, wood, and bricks, and mode of heating.

NAME OF PEAR (W. N. M.).—Mr. Hogg says, "The pear sent is Marie Louise, produced from a late blossom, and which, like almost all fruit so produced, has lost much of its external characteristics."

FOUNTAIN (W. N. M.).—At the best, fountains can scarcely escape appearing ridiculous. Pray do not entertain the idea of supplying one from a water-but!

PIG-KEEPING (A. B.).—See what Mr. Errington and Mr. Wheeler say to-day.

VINES IN POTS (J. R.).—These, as you say, enable a succession to be obtained in a small space, and are handsome objects; but they require more attention, and produce less fruit than vines in the open border.

FLUX FOR PIT (F. W. T.).—We cannot tell the size you will require, as you have not mentioned the dimensions of your pit. Coal-ashes would suit you for plunging, perhaps, but we should use sand, as being less dusty.

COVERING FOR PIT (E. Gascoigne).—If you require this only for wintering old Scarlet Geraniums in, asphalt felt will do, as these do not

require light. If you require light to be admitted for other purposes, and cannot use glass, try good cartridge paper instead of the calico, and render it semi-transparent with the same oily compound. The chimney of the stove will not be injurious, if you keep the air moist.

NOISSETTE ROSES (C. E.).—Probably what Mr. Beaton has already said will answer your purpose. If not, be more particular in your question. Thanks for the enclosure.

JUSUBE (Vashti).—The sweetmeat in the shops called *Jujubes*, professes, by adopting that name, to contain the juice of the berries of some one of the Jujube shrubs, such as *Zizyphus jujuba*, or *Z. lotus*, but we fear they are nothing but Gum Arabic, with the juice of the Red Currant. Some botanists think, as you observe, that the branches of a *Zizyphus* (*Z. spina-Christi*) were woven into the crown that was forced around our Saviour's head, but better authorities have concluded that that instrument of cruelty and mockery was made of the branches of *Palurus aculeatus*.

DISAGREEABLE SMELL.—A Curate's abode, when shut up, is filled with an unpleasant smell, "not from any particular cause," and we are asked for some more agreeable destroyer of the nuisance than chloride of lime. We know of none, nor would we recommend any other to be used, for the Chloride removes the unwholesomeness, whereas perfumes only conceal it. Burning a pastille would soon remove the odour of the Chloride.

GEOMETRICAL FLOWER-BEDS (A Cottager).—We can make no other reply at present, than that that we gave in a recent number. We are always ready to attend to such correspondents.

WATER IN A MINERAL DISTRICT (Tangley).—It does not follow as a certain consequence that water in a district "abounding in manganese, calamine, and lead ore," is impregnated with deleterious constituents. A spring may come from a stratum not containing any soluble metallic matters. If your water is hard and suspicious, expose it to the air for twenty-four hours, after adding a little ammoniacal liquor from a gas work to it. This, under any circumstances, will render it more useful for your plants.

AGERATUM MEXICANUM (Verax).—This is an annual, but may be rendered perennial by planting cuttings of it, and not allowing it to ripen seed. It requires protection in the winter. We have applied for information about the peas.

SALT (C. J. P.).—To the soil of your "old garden full of worms," you may apply eight pounds to every thirty square yards. You may mix each eight pounds with a pound of lime, and sow them broadcast over the vacant spaces. Do not spread dung over your Tulip beds.

PARING AND BURNING (Wheelbarrow Jack).—The charring process you propose, usually called "paring and burning," is a common mode of improving fen land; but to render it permanently beneficial, should be accompanied by draining. Concrete bottoms for ricks or stacks, made with gas tar, would be very good.

WATERING-POT.—The Rev. J. S. L. says, "Money's or Thompson's Inverted Rose Watering-pot, are essentially the same. The former figured and described in Loudon's Suburban Horticulturist, page 147; the latter is referred to at page 191 of your second volume. This gardening utensil may be very well for refined purposes, and will require to be always used with clear water; but for open-air gardening, the common zinc watering-pot, with a fixed rose, is quite sufficient. The watering-pot in question, however (now not much used), I believe may still be had in Oxford-street."

EXCHANGE OF FOWLS.—B. K. wishes to exchange for one or two hen Silver Pheasants—some peculiarly large chicken, a cross between a pure Cochins-China cock, and a hen from Batavia, weighing eight pounds. He has also some young cocks, of a very large cross, to part with. If a letter, in a stamped envelope, is sent to us, it will be forwarded to B. K.

FUMIGATING WITH TOBACCO.—J. R. suggests that "Iron tripods, supporting deep basins or pans (with holes in them to allow a current of air to pass through, for the purpose of creating a draught), be used for holding the fire on which to place tobacco, or tobacco-paper, for fumigating houses, &c. These will be found very durable and inexpensive, and quite supersede garden-pots, which are generally used for the purpose; but are not at all suitable, as the heat causes them to crack, and fly about in all directions."

YOUNG TREES (T. A.).—These do not succeed best when planted thickly together. They grow more rapidly tall by such treatment, not only because their lateral growth is checked, but because all trees elongate most in the direction where there is the brightest light. Trees planted less closely, and judiciously pruned, would not grow in height quite so rapidly, but they would increase faster in girth. Forestry, or arboriculture, is not so well understood as it ought to be; and we wish some of our readers, practically acquainted with plantation management, would favour us with a few essays on the subject.

NAMES OF PLANTS (R. S. B. and H. W.).—Yours are commonly called the Ivy-leaved, or rather the Nettled-leaved, Geranium, though not a Geranium, but *Plectranthus fruticosus*. (D. P., Dublin).—No. 1. *Cuscuta*, or *Pteris hastata*. No. 2. *Aspidium*, or *Cistopteris fragile*. We cannot detect your Chinese plant from the leaf sent. (H. W. M.).—In answer to you, Oct. 16th, we omitted to state that your two shrubs are *Comptonia asplenifolia* and *Myrica cerifera*. (A. D.).—*Meemby-anthemum inclaudens*.

CALENDAR FOR DECEMBER.

FLOWER-GARDEN.

ANEMONES, defend in bad weather; plant, if mild, for the last time till February. **AURICULAS**, defend in inclement weather. **BULBS** omitted, may be planted if the weather be mild. (See November). **CARNATIONS**, defend in inclement weather. **COMPOSTS**, prepare. **CROCUSES**, take up and pot in lumps, to force in pots. Dig over borders,

and dress all quarters generally. **EDGINGS**, trim. **FIBROUS-ROOTED** perennials and biennials, divide and plant. **FLOWERS** (choice), defend generally from inclement weather. **GRASS**, roll occasionally, if winter be mild. **GRAVEL**, roll and keep orderly. **HAWTHORN**, gather berries and bury in sand, to sow next October. **HEDGES**, plant, and clip deciduous ones. **HYACINTHS**, defend in inclement weather. **LEAVES**, collect for compost. **MULCH** round the roots and stems of shrubs newly planted. **PLANT** shrubs of all kinds. **POTTED PLANTS**, protect in deep frames, &c.; place in hothouse for forcing. **PRIVET**, gather seeds of, and make young shoots into cuttings in bad weather, lay them in damp sand or soil, and set next February. **PRUNE** all shrubs requiring regulation. **PRUNED ROSES**, scrape bark, and wash with lime and soot. **RANUNCULUSES**, defend in bad weather; plant, if mild; seedlings of them require protection. **STAKE** shrubs newly planted, and any others requiring support. **SUCKERS** may be planted as removed during the winter dressing. **TULIPS**, defend in bad weather. **TURF** may be laid in open weather. **UNCOVER** protected plants, and if not dry, place dry materials next them. **WATER** in glasses, change weekly; add a few grains of salt, or five drops of spirit of hartshorn. Buy all your **TREES** and **SHRUBS** forthwith, and put them in ground, preparatory for final planting in February. Think on the **ICE-HEAP**, and let leaves be gathered to cover it. See, also, that the ponds of water from which you get ice, are freed from leaves and sticks, &c. D. BEATON.

GREENHOUSE.

AIR, admit freely when the external temperature is above 35°, especially among hard-wooded plants not desired to have early in bloom. **BULBS**, well-rooted in pots, place in gentle heat for early blooming; put funnels of paper over the *Hyacinths*, to cause the stems of the early ones to rise freely; keep mice from the successions; few things are better for this than chopped furze. **CALCEOLARIAS**, **CINERARIAS**, **CAMELIAS**, &c., attend to with heat and moisture, according to the time you desire them to be in bloom: the two first will require frequent fumigating. **CLIMBERS**, prune them generally, to give light to the plants beneath them. *Passion-flowers* may be pruned back to within a bud of the main shoots. *Tecoma jasminoides* will bloom best on longish, strongish shoots, the smaller, therefore, should be cut out; after the strength is thus moderated, by these flowering profusely, it may be spurred back, like *Passion-flowers*. Train and clean winter-flowering climbers, such as *Krœnzgeda Maryatte*, and various *Tropæolums*, such as *tuberosum* and *pentaphyllum*; the latter started in summer, will bloom all the winter. **EARTH** in pots and borders, keep fresh by stirring. **GERANIUMS**, encourage the forwardest, when early blooming is desirable, with plenty of air, and a medium temperature of 45°, giving them plenty of air, and tying them out. *Scarlets*, taken up from flower-beds, and kept in boxes and sheds, keep dry. Keep old *Calceolarias*, so raised, m-water. **HEATHS**, keep cool, and give abundance of air in mild clear weather. **HEAT**, by fires, apply when necessary; use a little covering in severe weather in preference to making the fires strong. **IXIAS**, **GLADIOLI**, and the hardier **LILIES**, pot and set in a cold pit, to be protected from frost. **INSECTS**, keep under, by fumigating and scrubbing. **LEAVES**, dirty, wash; decayed, remove. **MIGNONETTE**, take in a few pots now and then. **PRIMULA** (Chinese), introduce; water with liquid-manure when it shows the flower-bud; the double-white give a favourable and warm position, as the flower stands well when cut, it is valuable for nosegays. **ROSES**, and other **SHRUBS**, introduce for forcing; commence at first with a top-temperature of from 45° to 50°; if the bottom-heat is from 5° to 10° higher, all the better. **SALVIA SPLENDENS**, supply liberally with water, and give it a warm corner. *Gesnera zebrina* will still be a good accompaniment, where the average night temperature is 45°. **SUCCULENTS**, keep dry, and *Cactus* especially, except the *Truncatus*, which will now be in bloom; give it a warm position, or the blooms will not open freely. The same may be said as respects position, in the case of *Oranges* opening their bloom. **WATER** seldom; be regulated by temperature, evaporation, and the wants of the plants; when the flower-buds are swelling and opened, give it oftener, and after breakfast, and with liquid rather higher than the temperature of the house. **TEMPERATURE**, 45° during the day, 40° at night, with 5° to 10° more, at a warm end, or a conservatory, for placing tenderer and forced flowers when first introduced, allowing in each case a rise of 10° or 15° for sun heat. In severe weather, prefer covering, even during the day, to large fires; comparative darkness, in a low temperature, for a short time, is preferable to light, and a parched atmosphere. R. FISK.

ORCHARD.

ALMONDS, plant. **APPLES** (Espalier), prune, &c.; plant, &c. **APRICOTS**, plant. **BRINE**, apply with a scrubbing-brush to stems and branches of fruit-trees, to destroy insects, eggs, and moss. **COMPOST**, provide. **CHERRIES** (Wall and Espalier), prune and train; plant. **CHESNUTS**, plant. **CURRENTS**, prune; plant. **CUTTINGS** of *Gooseberries* and *Currants* may be planted. **ESPALIERS**, prune and regulate. **FIGS**, protect from frost. **FILBERTS**, plant. **FORK** the surface around fruit-trees. **FRUIT-ROOM**, ventilate occasionally, and keep dark. **GOOSEBERRIES**, plant; prune. **LAYERS**, plant. **LOAM** and **COMPOST**, obtain. **MEDLARS**, plant. **MULBERRIES**, plant. **MULCH**, put around newly-planted trees. **NAILS** and **SHRUBS**, draw and prepare in bad weather. **NECTARINES**, plant; prune and train in frosty weather. **PEACHES** (See **NECTARINES**). **PEARS**, plant. **PLUMS**, plant; (Wall and Espalier), prune. **PRUNING**, attend to generally. **QUINCES**, plant. **RASPBERRIES**, plant; prune. **SERVICES**, plant. **SNAILS**, destroy in their torpid state. **STAKE** and support trees newly planted. **STANDARDS**, remove dead and irregular branches from. **STATIONS**, make. **SUCKERS**, plant; remove from all fruits. **TRENCH** and prepare borders, &c., for planting. **THIN** orchard-trees. **VINES**, plant, prune, and train. **WALNUTS**, plant. **WALL-TREES** generally, prune and regulate. **WALLS**, it is a very beneficial plan to paint these by means of a white-washer's brush, with a liquid mixture of 8 lbs. lime, 4 lbs. soot, and 6 lbs. sulphur. It destroys and banishes insects, as well as, by its dark colour, promoting the warmth of the wall. The liquid employed, in which to mix the above, should be urine and soap-suds in equal proportions. Any trees proposed to be regrafted in the spring, may be headed down

now, but the stumps of the branches should be left sufficiently long to permit a few inches more to be cut off at the time of grafting.

R. EBBINGTON.

FORCING HOUSE.

AIR, see *Ventilation*. **ASPARAGUS**, promote succession crops; bottom-heat 75°; plenty of air when up. **APRICOTS**, see *Peach*. **BOTTOM-HEAT**, sustain generally about 72° to 76°. **CUCUMBERS**, top dress, apply liquid-manure and stop, and keep glass clean over head, air heat, 66° to 70°. **CHERRIES**, see *Peach*. **COVERINGS**, apply assiduously, so as to be able to give air frequently. **FIRES**, use discreetly, to repel frost, to sustain the proper temperature, and to be able to give air rather liberally. **FIGS**, see *Peach*. **GRAPES**, late fruit, fire freely in the day with much air; avoid spilling water in house, and use the scissars once a-week thoroughly. **INSECTS**, extirpate, now is the time; do not forget the soft soap, the sulphur, the sponge, and fumigation. **KIDNEY-BEANS**, pot in five-inch pots, four in a pot; the *Dun's* and *Newington Wonder*; light secure by all means; keep glass clean washed. **NECTARINE** and **PEACH** in blossom, keep at about 55° by day, at night about 40°; water very sparingly; shake branches gently, to distribute the pollen; stir earth around often. **PINES**, secure 66° to 70° to fruiters, with plenty of air; bottom-heat, 77° in dung-pits, keep hardy by plenty of air, and good linings; no water until the end of January. **ROOTS**, protect in all tubs, boxes, pots, &c. **SEA-KALE**, provide successions; bottom-heat 70°. **STRAWBERRIES**, introduce good buds about the middle of December, earlier is not safe; begin at 50° in heat, and a bottom-heat 60°. **TARRAGON**, **MINT**, **SORREL**, **MAJORAM**, &c., introduce to bottom-heat. Let **HEAT** follow in a ratio to the light, at any period. **VENTILATE** as freely as you dare at all times. **VINES** to force, begin at 50° in blossom, maximum, 70°; keep air moist, and get a warmth in border of 80°; sulphur freely; remember the dreaded mildew. **WATER**, apply always in a tepid state.

ORCHID HOUSE.

AIR. Excepting on very fine, bright, sunny mornings, when the heat of the sun and the fire combined raise the temperature too high, no air will be required this month. **BLOCKS**, plants on, syringe when the sun is likely to shine. **BASKETS** with plants in, that are growing, dip in tepid water two or three times; those not growing dip only once. **BASKETS** (new), make to be ready when wanted. **INSECTS**, destroy diligently; one pair destroyed this month, will prevent a numerous brood next year. **MOISTURE** in the **AIR**, supply to plants growing. **POT GROWING PLANTS**. Several will start this month, do this before new roots are formed. **PEAT**, procure; choose the most fibrous; the best is found in dry woods, where the Common Brake (*Pteris aquilina*) abounds; the roots of this fern form the best fibrous peat. **STANHOPEAS**, in baskets, beginning to grow, put into fresh baskets with fresh peat; four inches deep is quite sufficient. **WATER** at the roots, apply only to growing plants, and that round the edges of the pots. **YOUNG SHOOTS**, look to, and keep the centre dry, or they will rot. T. APPLEBY.

PLANT STOVE.

AIR, give on all favourable occasions. **ACHIMENES**, pot a batch to flower early. **BEGONIAS**, to bloom early, repot. **CERODENDRUMS** beginning to grow, repot towards the end of the month, place in heat, and water moderately. **ERANTHEMUMS**, winter-flowering, water freely and occasionally with liquid-manure. **FRANCISCA**, pot a few, and place in heat, to flower early. **GARDENIAS**, pot a batch, and place in dung heat, to start them to grow, and kill insects on them, especially the red spider, the great enemy of *Gardenias*. **GESNERAS** showing signs of growth, shake out of old soil, and pot in fresh compost, give little water and moderate heat till next month. **GLOXINIAS**, treat a few similarly. **HOYA BELLA**, a new and beautiful species, put in baskets, and train downwards. **IXORAS**, keep cool, and moderately dry, through the month. **LUCULIA GRATISSIMA**, in flower, remove into a greenhouse, to prolong the bloom. **LYCOPONS**, divide and repot. **PASSIFLORAS**, prune, and tie neatly in. **ROGIERAS**, a new genus of winter-blooming plants, should be now showing flowers. **SEMICOGAPHIS GNEISSBRECHTIANA**, another addition to our winter-flowerers, repot, and water freely after the blooms are visible. In every department of the stove, let cleanliness prevail; clear the surface of the pots of moss and lichen; stir up the soil carefully, without injuring the roots; search diligently for insects; keep the walls and floors as dry and clean as possible; remove decaying leaves as soon as they occur; and let neatness be the general order of the day throughout the whole month. T. APPLEBY.

FLORISTS' FLOWERS.

AURICULAS and **POLYANTHUSES**, protect from severe frost; give air on every fine day; keep as dry as possible without flagging, remove decaying leaves, and stir the surface of the soil occasionally. **CARNATIONS** and **PICOTEES**, shelter from frost, snow, and heavy rains; give air to on fine days, even to pulling off the glass; in wet weather give air by propping up the light behind; water if very dry; watch for slugs, and destroy them. **DANLIAS**, examine, cut off any decaying part to the quick; protect from frost. **HOLLYHOCKS** may be planted in open weather; mulch with short litter; cuttings pot off, and seedlings transplant. **HYACINTHS** in beds, shelter from frosts, by mulching. **PINKS**, look to after frost, and press the earth to the plants. **RANUNCULUS BEDS**, prepare. **TULIP BEDS**, shelter from frost, heavy rains, and snow; finish planting, b. **VERBENAS** in frames, give abundance of air to; if mildew prevails, dust with sulphur; protect from hard frost; water seldom, and only then when absolutely necessary; pick off decaying leaves. In this month **FRESH SOILS** may be procured; **LEAVES** collected; **HEAPS** of manures, loam, and peat, frequently turn over to sweeten and pulverize. T. APPLEBY.

KITCHEN GARDEN.

ARTICHOKES, dress. **ASPARAGUS-BEDS**, dress, b.; plant to force; attend that in forcing. **BEANS**, plant a good main crop the first week in

the month, if not done the last week in November. **BEETS** (Red), dig up and store. **b. BORRICOLES**, full grown, may be taken up with good balls of earth, and planted in any nook or corner, or plot of ground of less value, in open weather. **BROCOLIS**, treat the same, but lay in deeper, so as to earth up the stems well; lay them in carefully, with their heads towards the north. Thus moving these vegetables gives an opportunity to prepare the quarters they occupied for other important crops; they are thus better enabled to stand the severe weather that may be expected, and, being closer together, they are much more convenient for protection. **CABBAGES**, plant; earth up. **CARDOONS**, earth up. **CARROTS**, store the main crops if not done, and attend to those growing in frames, &c. **CAULIFLOWERS**, attend to airing in all favourable weather those in frames or under hand-glasses; remove all decayed leaves, and look after slugs. **CELERY**, earth up, and protect when necessary. **COLEWORTS**, plant. **COMPOSTS**, prepare and turn over. **CUCUMBERS**, attend to those bearing; sow seed towards the end of the month for plants to plant out in the middle of January. **DUNG**, prepare for hot-beds. **EARTHING-UP**, attend to. **ENDIVE**, take up full grown on a dry day, and plant deep and close together at the foot of walls, or other warm dry corners convenient for protection in severe weather. **HORSE-RADISH** may be dealt with in the same way as directed for the Jerusalem Artichoke. **HOT-BEDS**, attend to. **JERUSALEM ARTICHOKEs**, give a good top-covering of any rough mulching or garden-refuse, so as to keep out frost, and to enable them to be taken up when required; yet it is well to have a few of the roots stored in case of snow, or other rough weather, at the very time they are wanted. **KIDNEY BEANS**, force, **c. LEAVES**, fallen, collect together. **LETTUCEs**, attend to those advancing in frames on a gentle heat; see that no drip falls into the hearts of the plants, and give all

the air the weather will permit to such as are planted in frames for winter protection only. **LIQUORICE**, dig up. **MINT**, force. **MUSHROOM-BEDS**, make; attend to those in production. **PARSNIPS**, dig up and store. **b. PEAS**, sow in the open ground of the best early kinds, protecting them from frost, mice, slugs, and birds. **PLANTS**, to produce seed, attend to. **b. POTATOES** may be planted in light soils in open weather, and in hot-beds towards the end of the month; examine often the in-door stores. **RADISHES** and **SMALL SALADING**, sow in frames, &c. **RHUBARB**, take up and pot off for forcing, or cover up with pots or tubs and fermenting materials. **SEA-KALE**, cover up with fermenting materials; fallen leaves are the best material both for covering up the Sea-Kale and Rhubarb. **SPINACH**, keep clear of weeds, and fallen and decayed leaves. **TANST**, force. **TARRAGON**, force. **TRENCH**, drain, &c., vacant ground. **WEEDING**, attend to. Be on the alert of a frosty-looking evening, and **COVER-UP** a little earlier. **TURNIPS**, any quantity, according to the demand, may be taken up and stored or packed-up tidy in a corner, to be buried in coal-ashes, so as to be come-at-able when required. We always make it a rule, at this season of the year, to store in little or much, according to the appearance of the weather,—a dozen or two of *Celery*, and *Endive*, *Brocoli*, or anything else that is likely to be required. T. WEAVER.

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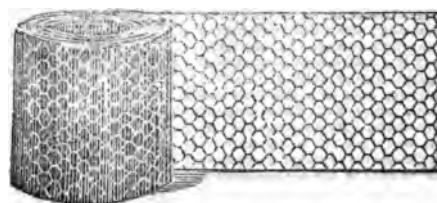
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WEEKLY CALENDAR.

M D	W D	DECEMBER 4-10, 1851.	WEATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	(Thermo.)	Wind.	Rain in In.						
4	Th	Linnean Society. Horticultural Society.	30.081—30.029	50—38	S.W.	06	50 a. 7	51 a. 3	2 41	11	9 42	338
5	F	Laughing Goose comes.	30.307—30.243	54—31	S.W.	03	51	51	3 48	12	9 18	339
6	S	Black-throated Diver comes.	30.377—30.345	45—32	S.W.	—	52	50	4 56	13	8 53	340
7	Sun	2 SUNDAY IN ADVENT. Polyanthus	30.328—30.323	46—26	E.	—	53	50	6 6	14	8 27	341
8	M	Skylarks flock. [flowers again.	30.346—30.322	37—28	S.E.	—	55	49	rises.	15	8 1	342
9	Tu	Red-throated Diver.	30.319—30.293	38—29	N.E.	—	56	49	4 a. 51	16	7 35	343
10	W	Wild Swan comes.	30.340—30.146	42—28	S.	—	57	49	5 43	17	7 8	344

It has been justly observed that—"It is the duty of every one who comes into the world, to leave it as much wiser and better as he can than he found it." If this doctrine was acted upon, what a glorious world we should have. There are those whose private pleasures conduce to the public good, and it is true wisdom to cultivate such, for a blessing attends them. The individual whom we have selected for the subject of our present biographical sketch, was an example of the foregoing remarks. PETER COLLINSON was born in St. Clement's Lane, Lombard Street, in the year 1693, and afterwards settled in partnership with his brother, as a woollen draper, in a shop then under the sign of the Red Lion, in Gracechurch Street, a place and calling not very favourable to the cultivation of botany and natural history; yet by prudence, industry, and a wise distribution of time, the two brothers succeeded, not only in establishing a lucrative concern, but in securing the leisure necessary for carrying on their favourite pursuits. Their tastes were similar, they mutually assisted each other, and both took country houses at Peckham. To Peter Collinson's residence was attached a large garden—in this he cultivated, successfully, the principal useful and ornamental plants then grown in England, and also added an extensive collection of exotics from various parts of the world, but chiefly from North America. John Bartram, of whom we have given a biographical sketch in our 5th volume, was his agent in the latter country. But Collinson's object was not to collect for himself merely, but to distribute to others, and to create and diffuse a taste for whatever was useful and beautiful in nature and art. He enjoyed the pleasure of giving as well as receiving; he increased by scattering; his heart deposed liberal things, and by liberal things he acted. Few influential persons left these shores to settle abroad but Collinson found them out, established a friendly connection with them, and became their friend and patron; he suggested plans for them to adopt on arriving at their destination, and sent them, from time to time, information of what was going on in England. Dr. Franklin first received from him hints on the subject of Electricity, and his essays on that science were subsequently addressed and dedicated to his benefactor. In a letter which he afterwards wrote to Dr. Fothergill, on hearing of Collinson's decease, he says:—"As you may be unacquainted with the following instance of his zeal and usefulness in promoting knowledge, which fell within my own observation, I take the liberty of informing you that a subscription library being set on foot in Philadelphia, he encouraged the design by making several valuable presents to it, and procuring others from his friends, and as the library company had a considerable sum arising annually to be laid out in books, and needed a judicious friend in London to transact the business for them, he voluntarily and cheerfully undertook that service, and executed it for more than thirty years successively; assisting in the choice of books, and taking the whole care of collecting and shipping them, without ever charging or accepting any consideration for his trouble." The Doctor further observes that the success of this library led to the establishment of about thirty others, and was the means of spreading much useful knowledge in that part of the world.

Peter Collinson was a Fellow of the Royal Society, and of most of the leading Benevolent and Scientific Associations of the Metropolis; in all these he was an active and working member, contributing liberally to their support. He watched for opportunities to impart knowledge, and wrote articles at various times for the Philosophical Transactions, and the Archaeologia; he also furnished several Papers to the Gentleman's Magazine, "On the Management of Sheep in Spain, and their probable advantageous introduction into Carolina, Georgia, and the Floridas;" "On American seeds imported into England in 1761, and their cultivation;" "On the White Pine, Weymouth, and other Pines; the Fir, and various species of North American evergreen trees, &c.," and several other valuable Papers. In 1736, he became acquainted with Linnæus, by the visit of the latter in that year to London, and afterwards corresponded with him until his death. In these letters you perceive the benevolence of his character, and the desire he manifests to impart useful information to his friends. Writing to him, October 3, 1744, he says:—"My orange-trees are yet abroad. My vineyard grapes are very ripe. A considerable quantity of wine will be made this year in England." Again—the following year he remarks—"Our gardens were in great beauty in January and February. Almonds, apricots, and peaches in blossom. February 23rd I went into the country; the elm hedges had small leaves. Standard plums, almonds, and Cornus, in full blossom. Gooseberries showing their fruit. In short, it would be endless to tell you the wonders of this season." In another letter he observes—"I love all books of natural history, and every production God has made. Pray what sort of land, river, and sea shells, are found in your country? Is anything peculiar observed in their natures? What sort of fossils are found in Sweden? Have you any particular species of fish that are found in no other parts of the world? Any insects peculiar to Lapland or Sweden? Send me specimens of them, or any other natural production."

Collinson was in the habit of making notes and memoranda of what he saw and heard, and particularly on the books he read; these, if collected together, would form a curious and interesting volume on the then state of the scientific world, and especially in the department of botany and natural history. Note.—"In March and April, 1761, the Duke of Richmond planted a thousand Cedars of Lebanon, on the hills above his house

at Goodwood; plants five years old, that I procured for him at 18s. each.—P. C."

Doctor Fothergill, who wrote a short sketch of his life, and who was his warm friend and admirer, says:—"He had correspondents in almost every nation in Europe, some in Asia, and even at Pekin, who all transmitted to him the most valuable seeds they could collect, in return for the treasures of America. In this exchange of good offices, there is abundant cause to believe no man ever exceeded him in respect to punctuality, care, and generosity; few had ever more intelligent correspondents, or succeeded better in enriching this country with the vegetable products of every other, that could either add to its advantage or ornament. And were I to assert that he was the means of introducing more new and beautiful plants into Britain than any man of his time, and was inferior to none in his acquaintance with the history of their introduction, I should run little hazard of transgressing the bounds of veracity."

Collinsonia canadensis was first introduced into this country by Collinson, in 1735, and named after him by his friend Linnæus. He had an extensive acquaintance with the first-rate naturalists of his age, and with persons of various ranks, who were distinguished for science and learning; among these were Ellis, Derham, Woodward, Solander, Dale, Lloyd, Sloane, and others. At the residence of the latter he was a frequent visitor, and materially aided him in the formation and arrangement of his magnificent collection of curiosities, which subsequently formed the foundation of the British Museum, to the trustees of which they were sold for £20,000, but Collinson says that they cost him £50,000. He seldom called upon his friends without imparting some useful suggestions, or introducing subjects tending to the public good. He was particularly solicitous that young persons should cultivate refined tastes, and adopt ennobling pursuits. His sociable and affable disposition qualified him to convey to these information adapted to their capacities, and calculated to incite their ardour. He lived in great domestic happiness, and kept a hospitable table. His wife, son, and daughter, entered warmly into his views, and aided him in his undertakings. In 1749, he removed to Ridgeway House, at Mill Hill, and was two years in transplanting his collection. He was seized with a sudden illness whilst on a visit to his friend, Lord Petre, at Thorndon Hall, Essex, and died August 11, 1768, aged 75. Inclosed in his will was found a paper, importing "that he hoped he should leave behind him a good name, which he valued more than riches; that he had endeavoured not to live uselessly, and that all his days he constantly aimed to be a friend to mankind."

For the preceding observations, we are indebted to an old correspondent (S. P. Ruchmere), and we will only add a few other particulars from other sources, though he is well entitled to a lengthened notice, indebted to him as our gardens are for introducing so many of their choicest ornaments. His collection was very large; his specimens were well chosen: he had a botanical garden at Mill-hill, near Endfield, which at that time contained many curious plants not to be found in any other, the number of which was continually increasing till his death. This collection and garden brought him acquainted with many persons of rank and distinction in this kingdom, who were distinguished by their taste in planting and horticulture, or desirous to make rural improvements. With some of these he frequently spent a few days at their seats, commending and censuring what he approved and disapproved in the designs they were carrying on, with an integrity and taste that did equal honour to the simplicity of his manners, and the rectitude of his judgment. Frequent opportunities, during a long life, had furnished him with an extensive experience of the effects of different methods of cultivation, and of the particular soil and aspect which were best adapted to different plants and trees; how beauties might be best improved, and incurable defects hidden: by this knowledge he often prevented young planters from committing capital mistakes, rectified others into which they had been misled either by the ignorant or the designing, and prevailed upon many of his friends to adopt this rational amusement, and persevere in it, to the mutual advantage of themselves and their country. "I never knew an instance," said Mr. Collinson, "in which the pursuit of such pleasures did not either find temperance and virtue, or make them."

He was a remarkable instance that he who is never idle need never be in a hurry. He was always doing something, and therefore he transacted all his domestic and mercantile affairs, and preserved his extensive and multifarious correspondence, with a quiet regularity and silent despatch that equally prevented embarrassment and delay. The blameless simplicity of his manners, and the careful economy of his time, kept his mind perpetually serene, and serenity is always easily improved into cheerfulness. When he was in London, he applied to the business of his counting-house; when in the country, he was almost continually employed in his garden, observing and assisting the progress of vegetation, which equally contributed to his pleasure and his health. He was in the highest degree fond both of flowers and fruit. Of fruit he always made the principal part of his meal; and his house was never without flowers, from the early snowdrop to the autumnal cyclamen.

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 46.0° and 35.6° respectively. The greatest heat, 57°, occurred on the 6th in 1813, and the lowest cold, 14°, on the 6th, in 1844. During the period, 85 days were fine, and on 83 rain fell.

HOPING that no one of the several correspondents who have written to us relative to the alleged fraudulent conduct of Mr. Edwards will consider that we treat their communications contumeliously, we must firmly decline inserting them. This is not because we view the subject with indifference, nor because those communications are feebly written, but because Mr. Edwards is fully arraigned at the bar of public opinion, and by evidence, and by evidence only, must he now stand or fall. It matters nothing whether one of our contemporaries flippantly repudiates the charge, nor whether another contemporary roughly sustains it—they are but the opinions, and prejudiced opinions too, of the individual writers—neither weakening nor strengthening the fact that Dr. Bushell, Dr. Sanders, and some others equally unimpeachable, after hearing evidence, have publicly charged Mr. Edwards with obtaining a prize with Tulips, of which one was not his own. Mr. Edwards denies this charge, but he has brought no counter-evidence, and if he does not produce some such evidence, as that of his gardener, or of Mr. Turner, of Slough, to contradict the statement, for the Tulip shown is said to have belonged to the latter, then the charge must be received as incapable of contradiction, and Mr. Edwards must abide the consequences. There is yet time for such vindication, and Mr. Edwards may be taking steps to demonstrate his innocence, but we know of none, and if he is taking such steps, it is very desirable that the public should be aware of them. Were his assailants less honourable men, to be silent and inactive might be a wise and dignified course; but being such men as those we have named, silence will be taken as a confession of guilt, and inactivity as a proof that no rebutting evidence can be produced.

We have endeavoured, with perfect impartiality and brevity, to exhibit the question as it stands now at issue, and we should not have done so if the interests of florists, and the integrity and influence of metropolitan floricultural societies, were not jeopardized by the consequences which may arise from Mr. Edwards's alleged delinquency. If he succeeds in establishing his freedom from the charge—and sincerely do we wish for such a conclusion—then will he, and those with whom he is connected, deserve additional support and respect for the firmness they have evinced; but, on the other hand, if the charge remains unrefuted, then must he cease from holding office, and from even being a member in any floricultural society. We speak thus emphatically, because we feel that every honourable man will be with us in saying that it would be ruinous to the influential character of any society, to give the slightest countenance to the suspicion that they think it a matter of little consequence for a florist to exhibit flowers dishonestly. To any society showing so low a standard of morality, no man of character would contribute either his subscription or his flowers. Feeling this, this alone, has induced us to recur to the subject; but before concluding we will observe, that it has been painfully impressed upon us by more than one relative

letter, that some of their writers do not seem to have a very correct estimate of what is the duty of any one, who sees the agents of another man active in enabling him to exhibit flowers fraudulently. They seem to think that if they observe an exhibitor's gardener employed to collect, or as one calls it, "to cadge," flowers, the observer of such a proceeding is not bound to protect the interests of the honest exhibitor, by revealing what he has witnessed. We need not argue how erroneous is such an opinion—we need not dwell upon the most obvious of all rules of criminal law—he who does a crime by the hands of another is as guilty as if those hands were his own; but we must protest against the supineness that allowed such proceedings, without dragging them into broad day-light. It is disagreeable to have to act this honest part, but it is a duty, and were we to see such "cadging" to-morrow, we would take care to let the offence be perfected, and then drag the culprit forth, whether he propelled a wheelbarrow or reclined in a chariot.

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.



LOBB'S SARCOPOD (*Sarcopodium Lobbii*, var. *Henshallii*).—*Gardener's Magazine of Botany*, iii. 269.—The original Sarcopod was first discovered by Mr. W. Lobb, after whom it was named, in the *Botanical Register*, by Dr. Lindley; and this variety of it, which has paler flowers than the species, was also named by the same author, in compliment to Mr. John Henshall, who discovered it in Java, whence he sent it to his patrons, the Messrs. Rollinson, of Tooting, a firm much celebrated for their extensive collection of air plants, and for their success in growing them. The general aspect of these

Sarcopods is so much like that of *Bulbophyls*, that Dr. Lindley at first mistook them, and named this *Bulbophyllum Lobbi*.

Sarcopodium is derived from *sarx*, flesh, and *pous*, a foot, in allusion to the creeping, fleshy stem and roots, from which the pseudo-bulbs rise at close intervals, bearing only one short fleshy leaf on the top of each bulb; one scape, or flower-stem, rises from the bottom of each of the pseudo-bulbs, and carries but one flower on the top of it, which is not quite so high as the leaf on the bulb. The flowers are produced numerously, according to the number of the pseudo-bulbs; they are very pretty, of a buffish yellow colour, and streaked with brown and purple on the outside. It belongs to the Natural Order *Orchids*, and to *Gynandria Monandria* of Linnæus. It first bloomed in England during the spring of 1849.

B. J.

CULTURE AND PROPAGATION. — *Sarcopodiums* require the same kind of treatment as the *Bulbophyllums*, as, for all the purposes of the gardener, there is little difference between them. They will do equally well tied on a block of wood, with a little sphagnum over the roots, or in well-drained pots, raised a little above the rim, on fibrous peat, from which the earthy particles have been shaken. The best time to divide them for increase is when they show signs of growth in the spring; and all that is necessary is to cut off the communication from bulb to bulb, by cutting the creeping stem from which they grow. Each bulb will then be an independent plant, and they may be separated; but a better, or, at least, a safer plan for amateurs would be to let the mass of roots thus divided grow on for another season, and to shake all the soil from the roots in the spring following, to allow the bulbs to be taken one by one from the mass.

D. BEATON.

THE FRUIT-GARDEN.

THE CHERRY.—REST-PRUNING, &c. — (Continued from page 126).

At the risk of being somewhat tedious to one class of the readers of this work, we feel induced to pursue this subject, at this the most appropriate time, knowing also that our respected Editor is desirous of not only conveying general information to those he caters for, but also to make it, as far as possible, *immediately applicable* to cases occurring at the period in which it is written. Next in rotation, then, we take THE CHERRY. Here again we may be permitted just to give a passing glance at the *espalier rail*, for there is scarcely a family of out-door fruits, but could furnish some of its members with the garniture of this useful and ornamental addition to gardens, where "the useful and the sweet" are sought to be combined. Some of the Cherries would seem to be especially adapted for this purpose, and amongst the rest the *Morello*, the most generally useful kind perhaps in cultivation. This, it is well known, is usually attached to the northern aspect of walls, but although in such situations it does immense service, it does not accomplish all of which it is capable. It is not every one who is aware that this Cherry, ripened under proper advantages, possesses an amount of flavour almost unknown to other Cherries, and peculiarities entirely its own. And with this flavour is combined a sort of roughness or

smartness, not altogether unlike good old port; and we have generally found that the higher class of palates prefer it, when thus perfect, to the sweeter kinds.

The conditions to which we allude as being necessary to its perfect flavour, are warmth and a thorough exposure to solar light; together with a tolerably free circulation of air. Now we well know that the superior aspect afforded by a south wall, produces an excellent *Morello*, and, indeed, it would be well for every one delighting in a long succession of good Cherries, to place one in such a position: but how many candidates would press on our view, if we were to show forth the best furniture for such a valuable aspect, selected from the modern fruit catalogue! Nevertheless, the east or west aspects produce very good *Morellos*; but for these aspects, too, a heavy demand exists. A south wall *Morello*, an east wall one, a north wall, and two or three *espalier Morellos*, would make the proprietor secure of excellent Cherries from the middle of July until the end of October: a goodly period for one kind of fruit alone.

It might have been urged, how well adapted for the north wall the *Morello* is, and truly it is correct, but we do not wish to drive it entirely away from that situation. If it be asked, what can be grown on the north wall as a substitute for the *Morello* grown elsewhere, we answer, that the *Red Currant*, highly cultivated, and finely trained, constitutes a valuable article in that situation; and with broad copings would keep for a very protracted time. Some day we must endeavour to give a chapter on the best mode of carrying this out; we may, for the present, observe that we have seen north walls clothed from bottom to top with noble fruit of the *Red Currant*, capable of being preserved until Christmas.

The *espalier rail*, however, would be well employed in the Cherry way: here the *Morellos*, *Bigarreaus*, *Late Dukes*, *Eltons*, &c., might be had at all seasons, from Midsummer until nearly Christmas, by having sliding curtains, as recommended in a previous volume for the *Gooseberry*.

And now to the rest-pruning, which in Cherries is very moderate in character. The mind of the pruner should be directed to the varying habits of Cherries, which for practical purposes may be divided into three classes, viz:—the large-leaved kinds, represented pretty well by the *Bigarreau*; the medium-leaved class by the *Dukes*, and the *Morello* section. The former, whether on walls, trellises, or as standards, require nearly twice the space for their branches in training as the *Duke* section, and the latter nearly twice that of the *Morello*. It is not a bad, although a very old maxim, to allow as much room between the shoots of trained trees as the leaf of the individual is in length. Thus a *Morello leaf* may be considered about three inches, pointing to an average of three inches between all the young shoots over the tree; a *Duke's*, say five inches; and a *Bigarreau's* about six to seven. Now this distance is simply intended to regulate the *young wood*, or, in other words, that which will *produce leaves* in the ensuing summer. It is simply a question of equality of light to the young leaf; for it matters not what the position or thickness of the old or leafless wood may be; this produces no shade. This is named, by the way, in order to prepare the learner's mind for the *tying down* or succession system, which we shall feel it a duty to recommend and expound fairly before very long.

These observations will serve to open the Cherry dresser's eyes as to the movements of his pruning-knife; but here it may be remarked that, doubtless, when the full importance of "*growth pruning*," alias finger-and-thumb work, is thoroughly understood, and earnestly recognised in practice, the gardener's pruning knife will be in great danger of becoming rusted, and woe to the Sheffield cutlers.

Fan-training is what we must beg to recommend for the cherry in general; and it is obvious that with the grosser-growing kinds with large leaves, either the first trained shoots in the young tree must be placed a great distance apart, in order that the young shoots, ultimately produced, may be nailed between; or, that the first shoots being put the ordinary thickness, much sacrifice of young wood must be made; or they must be tied down on the succession plan. The latter is our practice, and we beg to recommend it. The egregious folly of the cultivator's placing himself in such a position, as to become *compelled* to cut the chief of his young wood away, and leave his trees almost naked stumps, is so manifest, that the least solid consideration of the true position of the question ought to teach the cultivator to provide better against the reckless pruning-knife. We advise those, therefore, who have the large-leaved cherries laid in too thickly, to re-arrange them, so that most of the young shoots they have produced may be trained in, or tied down upon the older and barren wood, as the case may be; for assuredly cherries of this habit do not produce much surplus young shoots, providing that they are anticipated, and a provision made for their future training. Under such circumstances, most of the young shoots may be tied down, or otherwise encouraged; no two, however, should be permitted to lie abreast of each other; where two shoots are produced in a parallel direction, within about four inches of each other, one must, of necessity, be "spurred back," leaving about one inch at the lower end, which will prove a nucleus for future blossom-buds. No shortening back is requisite with the cherry in general. The only cases which can justify the practice, are, on the one part, crippled, or distorted points, and the necessity that exists in young trees to "*prune for wood*;" a practice heretofore explained, but which, it may be repeated, signifies an attempt by pruning, to cause one healthy shoot to subside into some three or four; for by such means is the desired form of the tree ultimately completed. The rest of the Cherry pruning resolves itself into thinning away cross shoots in standard trees, and those interior shoots which become crowded, and in consequence deprived of a fair share of light. As before observed, the length of the leaf in each kind may be fairly taken as the distance at which young shoots may be retained, observing, in all cases, to avoid two strictly parallel shoots; rather choosing a succession, one following speedily on the heels of another.

The Morello.—Here the foliage being very diminutive, nearly double the number of young twigs may be reserved as compared with even the Duke section. This tree is a pretty good illustration of Mr. Hoare's observations on the habits of the vine—viz., that solid wood is a detraction from the general stock of the alimentary juices; for what tree is there in the fruit-garden that will produce such a quantity of fine fruit as the Morello, with so small an amount of timber in the aggregate? Here the whole of the powers seem bent on the production of fruit; and when it is taken into consideration how seldom we know the Morello to miss a crop, or, in other words, what an excellent "setter" it is, we shall find in it one of the most useful trees in the garden. The Morello, then, requires but little "thinning out;" indeed, the avoidance of two young shoots immediately side by side constitutes the chief rule of pruning. Here, again, no shortening back is requisite, indeed, it is positively injurious in the bearing trees; as the principal, and in some cases the only real good wood-bud is at the terminal point; shortening, therefore, must in general be avoided. Through scantiness of the *true wood-buds* on aged trees of this kind, they are apt to lose many shoots; as they increase in age, they die off, or become almost denuded of useful young shoots. Such, therefore, have to be pruned away, or the tree assumes a dilapidated

appearance. The pruning these long barren shoots away, generally causes a re-arrangement of some portion of the trees, if not of the whole. Now this is rather a serious item in point of the time it requires, where people are pressed with business; and, therefore, it may suffice in general to simply cut out the dead shoots annually, and to clear away all the partially barren shoots *once in two years*.

This two years' examination should be a thorough one. Many long branches will be found with not more than a shoot or two on them. These may be cut clean out at their point of junction with the old limb, unless some favourable shoots, adapted for leaders, appear in the course of their length. It is generally best in this two years' revision, to untie or unnaill the whole tree, and to give it a new arrangement. Of course all young trees, destined to cover trellisses of any particular character, must be pruned and trained during the first two or three years, with a direct relation to that character, making it a point at all times to secure the most powerful shoots for the *lowest situations*; for the centre is generally capable of taking care of itself. Indeed, the same may be said as to the walls, and shortening back must be resorted to during the first three years, more or less, in order to produce the requisite number of shoots. It so happens that the younger Cherry trees are, the more prolific they are in wood-buds, and therefore pruning-back may be at that period safely practised. This remark applies to the whole family.

R. ERRINGTON.

THE FLOWER-GARDEN.

COMPANION TO THE CALENDAR FOR DECEMBER.—The flower-gardener has plenty to think about, and to occupy all his time, this month. All his stock for next year requires more attention now than at any other time. *Cold pits* are the most difficult to manage; soft young plants being so liable to damp off, if the lights are kept close, that they require a watchful eye almost every day. The usual way of sliding down the lights from the back to give air, is very objectionable all through the dull months; by far the best plan is to raise them up a few inches at both back and front at the same time, because that will create a current of air to pass over the plants. To make sure work of it, there ought to be two flat pieces of wood for each light, and they should be three inches thick and six or seven inches long, and fastened to the back and front plates by pieces of strong twine, so as to be always at hand. There should also be a wedge-stick for each light, to drive in between the lights and the rafters during high winds, so that the lights do not get blown off; whenever air is left on at night these wedge-sticks should be in their places, in case of a sudden change to windy weather when we are in bed. Instead of these simple precautions, nine persons out of ten shut up their frames and pits in the afternoon, let the weather be what it may; and when they find their plants slipping through their fingers, owing to damp and diseases brought on by this way of stifling, away they write to the THE COTTAGE GARDENER for prescriptions, and wonder how it is that they cannot keep their plants as the gardeners do. The next great point, after a thorough ventilation, day and night, whenever the weather is not frosty, is to have the pits, the pots, and surface mould, as clean as a bedroom, and no yellow leaves or mouldy shoots to be allowed to remain one day. After that, special care must be taken not to spill water about at the time of watering the plants; and unless the pots are very dry indeed, and the plants in danger, not to water them at all in dull, cloudy weather. If the damp air is allowed to circulate freely among the leaves, it is astonishing

how long they will hold up after the roots are in much need of water. Then take the first opportunity of a fine sunny morning to give water, and let the lights be thrown back, and the pit stand quite open for two or three hours after the pots are thoroughly watered.

Pits with flues, or hot-water-pipes, are the best to keep soft-wooded plants, and all plants in the seedling or cutting state; and nothing but downright inattention need harm the most tender plants we grow in such places. The only point in which the young beginner is likely to err with hot-water pits is in the watering. He reads in every book on gardening how essential it is to keep plants, in general, dry in winter; and being afraid of the slightest frost, he keeps his fire going longer and more often than there is actual need for it, by and by his tenderlings get overdried for want of water, and his case is even worse than that of him who has no fire at all for his plants. I remember one of our correspondents having sent me a bundle of young *Verbenas* from a store pot, last February, to see what was the matter with them, but there was no matter in them, for they had been dead two months, just from such a cause as now described. Very young plants, and all small plants that are kept in a warm pit, ought to be watered as regularly through the winter as they would in summer; at any rate, while the fire is going, every pot should be looked over every other day. Young *Verbenas*, *Petunias*, and *Anagallis*, keep better in winter if the compost is two-thirds loam, the rest peat and leaf-mould with very little sand; while almost every other kind of small flower-garden plants prefers a light compost. Therefore, *Verbenas*, *Petunias*, and *Anagallis*, if in their right compost, require less watering than those in the lighter soils, because good loam holds the water so much longer. Those who keep fine kinds of *Double French Marigolds* over the winter from cuttings, and find them difficult to keep, should put them into strong rich loam in October, and water them freely all the winter. Before I adopted this plan, I used to lose more than one-half of them; but now, if they were as sweet as violets, I see no reason why they should not be had, not only in health, but in full blossom the whole time, for of all plants we keep from cuttings, they are the only sorts which keep on flowering as long as they are growing, whether it be in winter or any other time. All the bulbs that were potted in October, and are now well out of the ground, such as *Gladioluses*, *Ixias*, *Oxalis*, *Alstromerias*, and others of the winter-growers among the *Amaryllids*, must now be kept very cool and well-watered, and be kept so all along till they come into flower; they dislike confinement under glass very much, therefore, let the lights be removed from over them every fine day for a few hours. Pits are far better for them than the best greenhouses in the world, because they delight in a damper atmosphere than is prudent to allow in a good greenhouse. *Lachenalias* are the only exception to this rule among that class of pot-plants. A shelf near the glass, in a well-regulated greenhouse, suits the whole of them better than the best pit. *Tropeolum tricolorum*, a favourite with every one, requires to be close to the glass, and have abundance of air at all times; but with that attention a pit or a greenhouse will suit it equally well.

I must also mention *Oxalis Boiciana*, for this is the exact time to think of having a bed of it next summer and autumn. It is nearly hardy; at least if it was planted six inches deep near the front of a greenhouse, or any wall, it would stand our ordinary winters, and if it was left so from year to year it would begin to grow by the end of August, and flower from the middle of September till the frost put a stop to it. Another peculiarity belonging to it is, that if the bed or border is of deep, light soil, it will bury itself deeper and deeper every year, each fresh crop of bulbs being

formed much lower down than the last, so that in a few years it will not blossom until very late, if at all, in a cold autumn. Therefore, the best way is to take the roots or bulbs up every year about this time, or earlier if the leaves are hurt by the frost; to dry them well for two months or more, then to pot them and force them into spring growth, so as to be ready to plant out in May after the *Geraniums* and *Verbenas*; then they would come into flower early in June, and continue on to the end of October, or later, according to the season. The great and turning point in their management is, to get them well dried in winter, and to keep them from the frost as long as possible, if they are left out in the earth with a covering over them as some people do, and then take them up by the end of February for forcing. It weakens them very much, because their natural rest is denied them, for although the frost may cut off their leaves, the bulbs, being still in the damp earth, are not at all resting. This *Oxalis* is certainly the gayest of this gay family, with thick, broad shamrock-like leaves on long footstalks, and large trusses of flowers rising up from among the leaves, each flower nearly as large and round as a shilling, and of the most glowing, rich, rose colour, altogether making one of the gayest beds in the garden every day the sun is out. It is also an excellent rock-plant, if there is a depth of a foot or more of soil for it. It grows freely in any light, rich soil. I do not know another *Oxalis* that would repay the trouble of forcing out of season like this, except *cernua*, alias *caprina*, and alias *flava*, of some country nurseries. This is the most beautiful *Yellow Oxalis* known, flowering naturally in May and the beginning of June, but by forcing it in a stove from the middle of October I have had it in bloom by the end of February, and, what I never observed in this family, the heat of a stove will cause the flowers to open in dull weather nearly as well as in the full sun-shine.

The *Chinese Larkspur* should now be taken up and stored in damp sand, away from the frost; the roots are like little Black Carrots, and in a very hard winter they often perish, especially in strong, heavy soils, so that the safest way is to take it up every winter, like *Salvia patens*. It varies exceedingly from seeds; the dark blue with large flowers is, perhaps, the best variety, and the next best a blue like that of *Salvia patens*, or say an equal quantity of both would make the best blue bed of all the plants we have of its size, which averages eighteen inches high; but I am not aware that true plants of it are on sale anywhere. It is customary to grow it as an annual, as it flowers the same season the seeds are sown; but one can never get a good bed of it that way, as plants with white, gray, and lilac flowers are sure to appear as well as blue ones. The mode of getting a true stock of it, is to sow a large packet of seeds in April—say a shilling's worth—and to pull up every false tinted plant as soon as it flowers, leaving only the best blues, and in two years a full stock of it may be had for beds; and I recommend it above all the blue plants we have. It flowers from June to the end of the season, if the seed-vessels are picked off as fast as the flowers fade, but if allowed to carry seeds there is a break of six weeks in its flowering, and it only comes in early and late. The above details were recommended to me a few years since by a clever gardener, now in America, and by following the plan to the letter, I established a good stock of beautiful plants, that will be put into a bed next year for the first time at Shrubland Park. I ought to say, in justice to the nurserymen, that it is not their fault that their seeds of it do not come true. I have saved seeds from the best variety only, which could not be spoiled by bad sorts, for I had none such in the garden at the time, and yet about one-third of my seedlings had dirty-white flowers, and a few of other inferior shades.

ICE.—I must refer to what I said last winter about

getting in ice, and the way to keep it in conical heaps, without any ice-houses; but I must remind people that not a chance should be lost, in case we may have such a mild winter as the last, when half the people in the country got no ice at all. As soon as the ice is an inch thick, it is as good, and will keep just as long, as if it were as thick as that from America—besides, it is much easier pounded. Last winter we thought ourselves badly off because we did not get a sufficient quantity to fill the old ice-house quite full; still we had enough for the whole season, although we began to draw it a month earlier than usual. The real value of letting in a current of air *over the ice* was never more apparent than it turned out to be this very season. Under the old system of keeping the ice stifled with straw in the passages, this ice-house, though filled brimful, used to be empty by the end of August; but last winter we could not fill it, there were seven feet of empty space on the top; on this we put four inches of straw, and over that the air rushed in and out as it listed, and we had plenty of ice in October.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

CHARCOAL, ITS USES FOR PLANT CULTURE, &c.—No greater error exists amongst amateurs than the prevalent idea, that gardeners in largish places never need sigh after the unattainable, nor experience the freezing damp of failure; the means and accommodation at their disposal being seemingly so unbounded, and the purse in which, of course, they insert their fingers at pleasure, being next to unfathomable in its depths and dimensions. On the contrary, however, it will be found, to a great extent, that even in large places, the most striking results are frequently obtained by the simplest means. The very extent of the materials required, and the necessity for abundance and display at all times, and not for a few months only now and then, renders, in nineteen cases out of twenty, a pleasing result, all the more pleasing in proportion as the *£. s. d.* part of the affair enters not as a dark shade on the otherwise bright picture, and this often imposes on the gardener, if he means to work for any certain object, the necessity of resorting to make-shifts and conveniences, which, if duly chronicled, would stagger the first buddings of envy in many a grumbling cosey amateur. Hence, though THE COTTAGE GARDENER, more than any other work, is distinguished for its attention to first principles, and the detailing of the simplest modes of action, particularly for the lovers of gardening with limited means, I have long felt that these simple details would be of advantage to no parties so much as to practical gardeners themselves. For instance, in our desire to descend into the minutiae of matters, we speak of potting a plant in so much loam, so much peat, so many broken crocks, and so much of pieces of freestone; and we do it all for the purpose of letting others follow the identical practice that succeeded best with ourselves, and yet, ten to one but the very minuteness of the details, if they conjure not up the ideas of empiricism, are too likely to be associated with the bewilderable and the unattainable. "Well," sings out an amateur, "I had made up my mind to grow that plant, but now, how am I to get that *freestone* in this clayey, chalky district, without the expense and the trouble of sending some hundred miles for a bushel of chips?" And here again grumbles out a young gardener, "*peat*, and I have not got a bit left, and none within thirty miles of me, and that like anything but the beautiful stuff that they get about London, from Wandsworth Common; though even about that neurer hand, master, generally so kind, did so grumble.

Ah, deary me!" And if a Scotchman, in go the ends of the fingers of the left hand among the hair, at a place on the left temple between the ear and the back of the head, in order that by arousing into action some slumbering bump there, a responsive echo should be given to the question, "What shall I do?"

The power of generalising, so as to be able to substitute one thing, easy of access, for another with difficulty obtained, is a great step in the right direction. Plants, such as Heaths, with fine hairy fibres, cannot be grown without peat, or heath soil; almost everything else is either too open, or too close, and half-decayed vegetable matter is generally too astringent. With the exception of these, most of the plants in this department may be cultivated well in rough, sandy, fibry loam; in such loam, with a portion of decayed vegetable earth, such as rotten leaves; or, in such loam again, with a portion of fibry peat. The best substitutes for peat, in such circumstances, that I have found, are decayed tree leaves, two years old, *not rotten* into mould, but allowed to *cake into lumps*, and these lumps well dried and aerated before being used, when they break are in a filmy, lumpy state, and as sweet as a nut;—the other is dried cow-dung, gathered from the pastures in a cake like slate, and kept under cover for from one to two years. It must not be used so freely as peat, though when so obtained, its nourishing properties are at the minimum. A little practice will render it apparent, that for most of the purposes referred to, leaving out of view its antiseptic qualities, peat is chiefly used for its mechanical properties in keeping a soil open and porous. Broken bricks, broken potsherds, broken sandstone, broken and whole pebbles, when each and all are destitute of any peculiar chemical property, act chiefly in a mechanical manner; though, to be sure, practice frequently tells us that some plants prefer to entwine their roots about one of these, at times, in preference to any of the others. We have seen that *charcoal* is antiseptic, even more than peat, and that its very *lightness* eminently fits it as a mechanical agent in potting. It is, generally, easily obtainable in the neighbourhoods of all towns; but though it may suit an amateur to buy a bushel or two, like guano, it is too expensive to be used liberally in a large place. Almost every gardener, and the possessor of a small garden, where there is yearly a considerable amount of pruning and cutting, may make enough to suit himself, and then a person can use it much more liberally. I find that for all common plants grown in pots, such as Cinerarias, Calceolarias, Geraniums, Salvias, and a great proportion of those mixed groups, for which peat and loam are mentioned in the books, a man has no need to cry to Hercules for help, if he can command a sweet fibry loam, some sand, and a few pieces of charcoal. I have tried two plants, as much alike as possible, of many things, such as Clerodendrons, Begonias, Fuchsias, Geraniums, &c., one potted in the most approved compost, the other in fibry, sandy loam, kept open with nodules of charcoal, and being treated in every respect alike; if any difference, the charcoal gentleman had the advantage, especially when a little very rotten but sweet dung, free from worms and worms' eggs, was used, either along with the compost, or more liberally as top-dressing. Still for all that, peat-earth, even for common purposes, is not to be sneezed at, but neither should we despair if we cannot lay hands upon it. A few other circumstances, connected with the use of charcoal, may here be noted.

First.—When burned, it should be kept close until cooled, and receive as little water as possible, and then be stored away in a dry place, but with access to the air, that it may absorb gases at will. Secondly.—If a preference is to be given, choose charcoal from six to twelve months old. I have noticed in the case of orchids, cucumbers, and other plants, where the roots were in

sight, that they would cling to old charcoal, when frequently they would hang loosely by, or seem to fight shy of, the newly-burned. In the latter case, the charcoal might chiefly act as a mechanical porous agent, and an absorber and disseminator of gases; in the former case, in addition to these, nourishment might be yielded by slow decomposition, though I am anything but satisfied on this score, as though I have weighed dried pieces of charcoal before inserting them in the soil of a pot, and washed and dried and weighed them again after six months, the difference in weight was scarcely perceptible. What is the result of our more experienced friends in this matter?

Thirdly.—As in the case of cuttings, so also in the case of old plants, the quantity may be over-done. In very large plants, I can scarcely give an average, as I seldom mix it with the compost, but pack it in pieces as the potting proceeds. For general purposes, from one-eighth to one-twelfth part may be used for hard-wooded plants, such as Heaths and Azaleas, and from one-sixth to one-tenth part in mixed greenhouse and soft-wooded plants. Fourthly.—The size of the pieces must be proportionate to the size of the plant, and the size of the pot, as well as the size of the shift given. A friend fond of gardening once complained to us, that he could not get on with this rough compost mode of potting, and wished us to look at a favourite plant now getting somewhat sickly. On turning the plant out of a six-inch pot, we found, that with the exception of a little fine matter on the surface, the compost consisted almost wholly of four pieces, two of peat, one of loam, and one of charcoal. Here was the law of extremes with a vengeance. The fine sifted soil of yore was perfection, in comparison to this. The loam, to get it in nicely, had been jammed as tight as fists could make it, and already it smelled as sour as if it had nursed only acids for a century. Of charcoal there was more than enough, as instead of constituting a fourth,—a sixth, or an eighth part would have been more prudent, and then, instead of such a thumping piece, the largest should not have exceeded the size of a walnut, while most of it should have been as small, and smaller than horsebeans. The same of the other constituents. There were the materials, they only wanted tearing asunder into a number of pieces, as small as the charcoal, mingling together, with the addition of a little silver sand, to grow a plant in health and vigour, as, in fact, these materials actually did in the case of the plant referred to, though at the period in question it was fast running the down-hill of existence. So likewise of large shifts and large pots, larger pieces may be used, but with caution. The very largest bedded in the soil, should seldom exceed the size of an egg. For small plants, it should be used in a small state. When these plants are hard-wooded or slow-growing, the *dust* should be removed with a fine sieve. That dust, if used sparingly, about one-eighth of the compost will be useful for soft-wooded plants of temporary interest, or that, by-and-by, are to be removed into groups in boxes or beds.

My space is exhausted, or I would have said something on charring wood and rubbish, such as prunings, stalks, &c.; the latter is the most difficult, especially where there is nothing but earth for covering, to prevent the heap from burning instead of charring. In such circumstances I have found it very useful to cover the heap with a layer of leaves or short grass, before putting on the earth, and lighting it—as when making holes to draw the peat and charring downwards, the leaves or grass prevent the earth getting into the centre, and choking the combustion.

R. FISH.

HOTHOUSE DEPARTMENT. EXOTIC ORCHIDACEÆ.

PLANTS THAT THRIVE WELL IN POTS (*Continued from page 115*).

VANILLA AROMATICA (Sweet V.); S. America.—The flowers are large and pure white; they are produced from the axils of the leaves, towards the ends of the shoots, on short stems. They are large and handsome. 21s.

V. BICOLOR (Two-coloured V.); Guiana.—Flowers red and bronze; habit the same as the last. A scarce plant that cannot be had at any nursery.

V. PLANIFOLIA (Smooth-leaved V.); W. Indies.—Flowers, cream colour, thick, and leathery; plant, climbing, adhering by its roots to walls, or the trunks of trees; leaves, large, dark green; and the flowers succeeded by seed-pods, five to six inches long. A handsome, useful plant. 15s.

This last species is cultivated in the West Indies for the purposes of commerce. It produces the famous scent called *Vanilla*, now sold by most of the perfumers in the kingdom. It has produced its seed-pods, from which the perfume is taken, in several hothouses in this country; but, perhaps, nowhere so profusely as in the exotic-fruit-house at Syon, under the judicious management of Mr. Iveson, the intelligent gardener there.

Culture.—Having procured a plant, provide a rather large pot, fill it with a rough compost, formed with large lumps of fibrous peat the size of a hen's egg, some pieces of charcoal the same size, some broken potsherds and rough sphagnum; drain well with crocks, and fill the pot so high as just to leave sufficient room to place the ball of the plant level with the rim of the pot; set it in the centre, and fill in the compost, pressing it down tightly around the ball till the pot is quite full. Then place it in a part of the house where, as it grows, it will soon reach a wall to attach itself to. Several years ago, when we had the care of the fine collection of orchids belonging to T. Brocklehurst, Esq., at the Fence, Macclesfield, there was a large plant of *Vanilla*, planted in a pot and trained against the back wall of a house, nearly forty feet long. The wall was eight feet above a tanner's bark bed, of which the wall formed one side. The plant sent forth one shoot, which was trained lengthwise, rather close to the bed of bark. It broke pretty regularly, and each shoot was trained upwards. And now a most remarkable circumstance took place; from various parts of the stem roots protruded, attracted, no doubt, by the moisture of the bark, clinging close to the wall till they reached the bark, they then branched out, and spread themselves throughout the bark. The nutriment they derived from this source, caused the plant to grow so much, that it not only covered the wall, but extended itself down the rafters, where it flowered freely. The plant at Syon is placed also against a wall nearly fifteen feet high, which it almost covers, and there it grows, and flowers, and fruits. Whoever is desirous to grow the *Vanilla* to perfection, must place it in a similar situation. In order to cause the flowers to produce fruit it is necessary to impregnate them. There is a kind of cap that covers the stigma, and in our moist stoves this cap never naturally lifts itself up. It must be removed with a pair of sharp-pointed scissors, and the pollen masses placed upon the stigma. It is impossible to give directions in words how this is to be done, but the operator will soon find out the *modus operandi*, or way of doing it. The stigma is situated on the top of the column, in the centre of the flower, and the pollen masses are placed near it. They are very glutinous, and will adhere to the stigma when placed upon it. The fruit or seed-vessels are long, something like the pod of the Kidney bean. When ripe they turn brown, and then afford the admired perfume. In this country,

however, it will never be worth while to extract it, as it can be had at the perfumers' for such a price that it would not pay to grow it for that purpose in our orchid-house. The plant, however, is worth growing for the purpose of covering a back-wall with its beautiful, dark-green foliage, and panicles of large, beautiful flowers.

Propagation.—As these plants send out roots all the way up the stems, they are easily propagated by cutting off portions of the shoots; divide them into lengths about two feet long; insert the ends, with a root attached to each, into the pots, one in each; place them in a shady part of the orchid-house, or, if there is the convenience of a bark-bed, plunge the pots into it, and shade them from the sun. Almost every shoot will grow, and, as it progresses, will throw out roots from every joint. As soon as they are fairly rooted, pot them into pots filled with the compost, and treat them in the same way as the established plants.

Syringing.—During the time the plants are growing, that is, in the spring and summer, the plants will benefit much by being frequently syringed; but in autumn and winter very little syringing will be necessary.

T. APPLEBY.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS.

Mr. Down's proposal to hold a *Florists' Meeting* in London, for social purposes only, is but a renewal of the annual dinner in January, which was held with the best effect for twenty years, or rather for nineteen, but such is the carelessness of gardeners, and all who are concerned in gardening, that when all have been addressed, not one in ten would condescend to answer the invitation, so that there never was the least certainty. But of the benefits arising from the annual meetings, we must not forget that it was at one of these that we proposed the establishment of the Gardeners' Benevolent Society, and forthwith it was established. We believe there is a general feeling towards resuming the annual dinner, for they brought all parties together, and for the day, neither politics, nor religion, nor any other subject but the interests of gardening, was allowed to be mentioned. But "who is to bell the cat?" Who is to take upon himself to send out innumerable letters, of which one in ten or twenty may be noticed? Who is to risk the ordering a dinner for a hundred people—the least number that perhaps may be expected to attend—and on the day be unable to say whether seventy or a hundred and forty will be present. We have seen the day when nearly two hundred met to exchange, buy, sell, and settle accounts. Let twenty lay their heads together and be stewards, and each engage to dispose of four tickets, and his own, advertise an invitation to everybody, with an intimation that no ticket can be had after a given day, and let the tickets be at a price that will not shut out the humble, but enthusiastic florist—say five shillings for dinner and dessert at the very most. Such a meeting might do a world of good, if it only wiped off by-gones, and led to a more congenial feeling for the future.

The *Stoke Newington Chrysanthemum Society* has held the annual show in the Manor Rooms, and we do not exaggerate when we record that many of the blooms were six inches in diameter. Our readers will remember the list of show flowers we gave; and if we were to report the names of the winning varieties, it would be merely repeating the names we have given as the best. We never saw the *Queen of England* so fine, nor *Goliath* so bad, in all the stands; this was remarkable. We were favoured with a sight of some new ones from France, not exhibited at the show, and we may safely recommend two of them as great acquisitions—these

were *Rainbow* and *Monge*. The specimens of *Chrysanthemums* in pots were beyond all praise; and Mr. Salter exhibited a stand of flowers, not for competition, which had many admirers—a stand of the *Pompones*, or *Lilliputian* varieties, which, as pot varieties, are exceedingly beautiful. Judges, Mr. Nevil, Mr. Frazer, and ourselves. A sumptuous dinner was provided, and sixty or seventy exhibitors and friends sat down to it; but, beyond eating and drinking, there was nothing very remarkable said or done.

The *Highgate Chrysanthemum Show*, a second edition of the Stoke Newington, with additions, we wish we could say improvements, came off on Wednesday the 26th ult. It is a worthy offset of the old bulb, nevertheless, for the members of the old one not only support it, but actually form it. There is palpable evidence that the *Chrysanthemum* is a rising flower. As in floriculture, we only look wilfully at the pleasant side of the question, and pretend not to notice the opposite, we confine our report to the facts, that the flowers were highly creditable to the exhibitors, and the dinner as creditable to the landlord. The winning varieties may be found among those we have recommended.

FUCHSIAS (A. D.).—If the selection is to be from the list sent, take *Banks's Voltigeur*, *Henderson's Resplendent*, *Smith's Sidonia*, *Psyche*, and *Clapton Hero*. But we gave a much better list. The following are the best of their classes; and if our readers recollect some good one that we have omitted, they may conclude that they are beaten:—*Ne plus ultra*, *Coralina*, *One in the Ring*, *Elizabeth*, *Hebe*, *Standard*, (Mayles') *Champion*, *Lady Dartmouth*, *Sidonia*, *Leader*, *Banks's Diamond*, or *Diamond*, *Pince's Princeps*, or *Princess*, *Nil Desperandum*, *Psyche*, *Clapton Hero*, *Scarletina reflexa*, *Splendula*, *Voltigeur*, *Bride*, *Dr. Gross*, and, for a curiosity, *The Great Western*. Smith, of Hornsey, and Turner, of Slough, keep all the collection, but most nurseries keep some of them.

PELAGONIUMS.—We have a number of *Geranium* growers' questions to answer, and we shall, in a running article upon the subject, answer everybody, by giving a list of those which we consider have come nearest to the properties, and make the best show plants; and the selection we make shall comprise enough for any ordinary collection. We may here mention, that some of the best individual flowers form bad trusses, and are shy bloomers, and, therefore, by no means become favourites with exhibitors.

CHRYSANTHEMUMS under a north wall have not suffered at all in comparison with those on the south; but it is worth mentioning, that a plant which has been shaded from the sun, but left entirely unprotected through the last four days' frost when the sun was not shining, seems scarcely to have lost a flower, while the rest, which were not shaded, have every bloom spoiled. A house of *Chrysanthemums*, comprising merely the sorts we have mentioned, is at this time very striking, and, with care, and keeping free from damp, will probably remain so two months.

DAHLIAS (X. Y. Z.).—It is hardly fair to ask one to pick out half-a-dozen dahlias from all that are coming out; but as we have in another place mentioned the names of a dozen or more, with descriptions, we may repeat them here. They are all described in our *Annual Dahlia List*. They are—*Green's Scarlet King*, *Rawling's Dr. Frampton* and *Sir F. Thesiger*, *Drummond's Bob* and *Sir R. Whittington*, are all described good. *Ariel* and *Una*, whites, are mentioned with some doubt; *Laura Larington* and *Triumphant*, as the best fancies; *Annie Salter*, as a great curiosity; *Miss Wentworth*, as an acquisition to the light class; *Kossuth* and *Miss Ward*, as moderate fancies; *Morning Star*, as a brilliant orange colour, and new; *Louisa Glenny*, *Robert Montgomery*, and *Rose of England*, as very beautiful, but only one

bloom of each seen. We have seen hundreds of dahlias this year which are no advance on old ones, and if we have missed any it has been the grower's fault for not sending them to us.

AURICULAS (B. B.).—According to the old laws of showing, the exhibitor had to possess the plants three months, that is to say, before the first of February, and we recommend early purchases, because the more there are to pick from, the better chance there is of strong plants, for each buyer will pick the best, according to his judgment. Page's *Champion*, Cheetham's *Lancashire Hero*, *Ne plus ultra*, *Conqueror of Europe*, Grimes' *Privateer*, *Lovely Anna*, Taylor's *Glory*, and *Maypie*, are all certain show flowers. Col. Taylor, and Booth's *Freedom*, are very fine when caught, but one had need have a frame full of each for the chance. In the country they only show five pips, in the metropolis seven. Hedges' *Britannia*, and Smith's *Waterloo*, are both fine, but uncertain.

RANUNCULUSES (B. T. H.).—The principal raisers of these magnificent flowers are—Read, of Brucefield; Groom, of Walworth; *Arizee*, of Devonport-road; Tyso, of Wallingford; *Lightbody*, of Falkirk; and *Lockhart*, of Parson's Green. Florists who desire to be ready for June shows plant between the 7th and 20th of February. It is better to begin with a few good ones than a lot of middling or bad; either of these parties would send a dozen of their best; and if all were to do this at a moderate price, the collection would beat everything, if well grown. Mixtures can be purchased cheaply, and, if for garden ornaments only, would make beautiful border or bed flowers.

The *Acacia-like* plant sent to us with the Calceolarias and Geraniums appears to be *Ruscus Hypophyllum*, but there can be no certainty in a mere specimen without the bloom.

BREAKING OF TULIPS (M. D.).—The only thing the oldest and best growers have discovered is, that they know nothing about it. The Tulip from seed mostly comes of a self colour; after some years growing it may break into stripes, which stripes are rarely two years alike. Every conceivable means have been tried to hasten this breaking, but without the least success. We once had thousands of breeders, or unbroken Tulips; some planted in the poorest, and some in the richest soil imaginable—some in clay, some in sand, or nearly so, some in a shallow gravelly soil—some in the sun, others in the shade. We had some break in *every one of the conditions*, but not enough to show that one condition was more favourable than another. Old fanciers used to recommend seed to be saved from unbroken flowers. This was silly advice. Save it from the very best flowers that are broken; cross them how you like, there is certainly time saved by it, for the seedlings occasionally come broken when they first bloom. It is the only flower we know that does change after blooming; and they will occasionally change back again to the breeder, or self colour.

The sooner Societies put a limit to the size of Dahlias, the sooner we shall improve in what is far more essential, form. Four inches for the back row, four inches for the middle row, and three inches for the front, might be thought arbitrary; but some of our very best are rendered coarse, rough on the outline, and unsightly, by the endeavour to show the largest flowers. Sir F. Bathurst is more beautiful at four inches than five; so is the *Princess Radzville*, *Scarlet Gem*, *Yellow Standard*, *Burnmaid*, *Admiral Stopford*, *Queen of the East*, and others, and all they grow beyond that, is in coarseness. There are no more petals, but the same number has to cover a larger surface; and we maintain that three sizes in a stand are far better than equality, and enables an exhibitor to show a better variety.

PELARGONIUMS.—If B. T. can only afford six new

ones, buy *Ariadne*, *Enchantress*, *Magnet*, *Purple Standard*, *Shylock*, and *Elise*. There are, it is true, very many others, and all are praised, and many have certificates. Let those who can afford to buy all, do so but there are many persons who cannot order more than half-a-dozen, and we will warrant they will not be disappointed in the above-named. *Chieftain*, although praised by the National Society, is good for nothing.

CINERARIAS (Y. X.).—Those selected by the National Society are *Margaret d'Anjou*, *Alba Magna*, *Marianne Orpheus*, *Queen of Beauties*, *Rosalind*, *Beauty*, *Christabel Field Marshall*, *Formosa*, *Lady of the Lake*, *Loveliness*, *Model of Perfection*, *Nonsuch*, and *Prince Arthur*. Rather a wholesale recommendation it will be said, and more particularly as most of them are inferior to some we have already. How many of these will beat *Lady Hume Campbell*?

POLYANTHUSES (W. S.).—We shall be very glad to see them grown near London, but we fear it must not be too near. *Duke of Northumberland*, newish, was sent to us in fine condition, and *Lord Morpeth* also, but the former was the better of the two. We are informed that *Lord Morpeth* is a better grower than the other but we should certainly grow both. *Fire King* was also shown to us as a very striking flower, and the three would form part of our collection.

FLORISTS' FLOWERS CULTURE.

THE PINK—(Continued from page 131).

General Management: Planting.—The bed to receive the plants being duly prepared, as described in a former number, and the pipings well-rooted, proceed to plant them out. The best time to do this is in the early part of September. Two advantages are secured by early planting. If it is delayed a considerable time after the pipings are rooted, they draw up, become spindly, weak and long-legged, and are then so tender, that they suffer much from the autumnal winds, and many of them will perish if the winter sets in severely. This is entirely owing to late planting. The remedy, or rather prevention, is easy, namely,—to plant early, before the plants become thus drawn up and weakly. The other advantage is, that the plants are enabled, by being planted in the blooming-bed as early as September, to get well-established, firmly-rooted and even to make some growth before winter sets in. By being well rooted, the frost will have less power to throw them out of the ground, a circumstance which always happens to small plants of any kind when planted late in the autumn. The advantages, then, of early planting being so manifest, the florist is inexcusable if he allows the right season to pass, and his choice Pinks to spoil in consequence. The season for planting having arrived take the pot of pipings to the bed, turn them out, and carefully divide them, retaining every root, and even a small portion of soil to each, if possible. Commence with No. 1; plant it with a trowel, taking out a small quantity of earth; then put in the plant, and put the earth to it, pressing it firmly to each plant. The first row may be planted from the walk at the end of the bed plant them across the bed in rows six inches apart, and six inches from plant to plant in the row. This may seem a rather wide space at first, when the plants are small; but in the spring, when they have grown considerably, it will not be too much; besides, by giving this room, the earth can be more easily stirred-up between the plants in the spring without disturbing the plants. When the first row is planted, place the number of the variety to fill the row, if not, fill up the row with the next number. Be very particular to place each number or tally to each kind, in order to prevent mistakes and

confusion. This is, as we have often said, a very important point, especially to the florist who cultivates his plants for sale. In proportion to the care bestowed upon having the varieties true to their name, so will be his credit, and having once established a character for sending out plants correctly named, his trade will be sure to increase; whereas, if by carelessness about his tallies, he once gets wrong, and sells his flowers untrue, his credit will be lost, and his business will fail. To return to the planting. The first row being finished, before commencing to plant the second, procure a board nearly as long as the bed is broad, lay this across it, and when planting the second row place the foot upon the board; this will prevent a too great pressure with the foot upon the bed in one particular place. After the second row is finished planting, and the tally or tallies correctly placed, remove the board backward, stir up the soil where it has laid, and proceed to plant the third row; and so on till all are finished. The only point to attend to, is not to have too many plants out of the soil at once, as, if that were the case, the young roots being so tender would be sure to perish at the ends.

Mulching.—Though the Pink is, perhaps, the hardiest of all florists' flowers, yet, in its young state, a little protection from very severe frost will be useful, or, at least, will do no harm. That protection consists in laying upon the bed, between the rows, a thin covering of either very short littery dung, or one-year-old leaf-mould. If neither of these are at hand, a covering of decayed tanner's bark will answer the purpose moderately well. No other protection is necessary.

SPRING AND SUMMER CULTURE.—When the cold blasts and severe weather of winter are passed by and gone, examine the Pink-bed, and if any of the plants have been disturbed by the frost, press them down gently into the earth, and close it to them with the hand. The heavy spring rains will soon make the soil hard, and when such is the case, take a very short three-pronged fork, and with it stir up the surface of the soil, being careful not to disturb or injure the roots of the plants. The mulching, if very long, may be partially removed, and the rest mixed with the soil in the operation of stirring it with the fork. This forking of the soil will greatly refresh the plants, and they will soon show the good effects of it by vigorous growth, and improved colour of the foliage. The warm spring showers will also sink into the soil more easily, and enrich the bed, and thus encourage the growth of the Pinks. This forking the bed over may be repeated as the plants advance in growth, and will be useful to keep down the weeds, as well as keeping the surface of the soil loose and open to the beneficial influence of the weather. As the season advances, and the heat of the sun becomes powerful, a second mulching will be desirable. The former mulching was used to protect the roots from the frost; this second one is to act the reverse. It is intended to shelter the roots from the heat and drought caused by the rays of the sun and a dry season.

T. APPLEBY.

To be continued.

THE KITCHEN-GARDEN.

NORTH BORDERS.—A correspondent, at page 139, has enquired in what way he can make the most of a north border? and, as this is a subject of general interest, we at once comply with his request, and give the matter that prominent feature in our Calendar which its importance deserves, for we regard it, we confess, as one of the most useful spots in the garden, and we have no doubt our worthy coadjutors look with equal interest on it; Mr. Beaton has often hinted how useful a place it is to strike summer cuttings on; Mr. Errington, to

grow his Elton pine strawberries on for a late supply; and we dare say Mr. Fish will be equally anxious to have a share of it, to place his hard-wooded plants on in summer, pleading, as an excuse, that it is near the water. Now, our worthy correspondent will see how many different uses a north border may be put to; in fact, so many, that we despair of having any portion of it left, if our worthy friends have to be served first to the full extent they require; and though we regard Mr. Errington's claim (on the score of lengthening the season of that useful fruit, the strawberry) equal to our own, yet we have some reluctance to our other two worthy friends usurping too much of it, the purposes we put it to are so essential to the regular supply of "the useful," that we are loath to surrender it wholly into the hands of those who make it subservient to ornamental purposes. Our claim is this: it usually happens that a portion of each summer proves too dry for the well-being of our *Lettuces*, *Cauliflowers*, and beds of such things as require sowing at that particular time; now, a north border is at once cool and partially shaded, and, from its position, more moist than any other part of the garden, on which account it is, therefore, most invaluable for the production of these things. We know we should have often been badly off for good, well-blanching *Lettuce*, as well as have missed a crop of young plants for supplying another season, had we not had this north border, and our late *Cape Broccoli*, *Cauliflower*, and *Earliest Cabbage*, or *Colewort plants*, would have been difficult to entice up anywhere else, without more labour than we could well spare at that busy time, had it not been for this all-important piece of ground. But confining our observations more to the point, we should say, in answer to our enquiring correspondent, that he cannot do better with his border than plant a part of it, say one-third, with the *Elton Strawberry*, as we can confirm all Mr. Errington has said of its late-bearing properties, and when planted here its usual period of producing is much lengthened; and it often happens, some change in the weather takes place towards the end of the general strawberry season, which enables the later blooms of this somewhat desultory-bearing fruit to arrive at a greater degree of perfection than it could possibly have done if planted anywhere else; so much so, that we have often gathered fruit here when its novelty attracted no little attention. The appearance of a severe winter renders it advisable to postpone planting until spring, unless it be already done; but our correspondent has only to turn to Mr. Errington's remarks on this head in former numbers, and he will see the culture there explained in a manner to which we have nothing to add. Our duties are more especially with that portion of the border now vacant, by the last of the summer-sown lettuces having been cut down some time since; and we suppose all that is useful of the cabbage and other plants reared there, are also removed somewhere else, so that a considerable space of vacant ground exists; this we advise to be at once manured and ridged, as it is impossible to make this border too loose. In *ridging*, be careful to lay it up as rough as possible, and also take advantage of some dry, frosty day in winter to turn those ridges again, taking care in so doing to make the furrow in the place where the former ridge was, in fact, splitting each one, as is done in some counties for turnips in the fields; by this means the fertilizing action of the atmosphere has a more extended surface to work upon, and in the spring you will find your border work better than you anticipated, and, as this border is not wanted early in the spring, it will have so much the more time to mellow down.

One of the first crops our correspondent need put in this border are *Radishes*, and in most places they need not be sown before the beginning of May, as more

exposed situations suit them better earlier in the season; and should that month prove a very dry one, he will, probably, want some of his *late Brocolis*, and such things sown here; but, in a usual way, *Lettuces* can be grown in some more exposed place until later in the season. In fact, no particular directions can be given as to the precise period in which the crops here ought to be put in, as everything depends on the season,—a dull, moist one making the north border less useful than other portions of the garden; but there generally is a period of dry weather at some time or other, in which its utility becomes manifest. We may say, we have often planted *Lettuce* here, with every success, when the same kinds ran immediately to seed in other parts of the garden; and we have also grown *French Beans*, *late Peas*, &c., as well; but usually we have not been able to find room for these things here, and with good culture, they may be made to succeed tolerably well elsewhere, which some of the things mentioned above will not. We have also, at times, prepared a bed, and pricked out our *Celery plants* prior to planting out in the ridges. The uses of a north border, then, are so manifold, as to make it one of those interesting plots we would be very sorry to be without. We need hardly add, that what we mean by a north border, is that slip of ground immediately behind a wall running east and west, or the north side of a range of buildings running in the same direction, where the crop may be partially shaded from hot sunshine.

SUNDRIES.—As we have already had more severe weather in November than for some years past, we must impress on our readers the necessity of being prepared for it, by always having a supply of such roots and vegetables in store, as is wanted for daily consumption. *Turnips*, *Jerusalem Artichokes*, and *Parsnips* might be kept very well, in any cool shed, for several days; and so might *Horse-radish* and *Celery*; the latter ought, however, to be laid in an upright position

amongst sand. *Brocoli* might be cut and hung up, crown downwards; and if *Lettuces* are taken up with a little ball of earth, they will keep a long time good amongst nothing but sand. These, and some other preparations, ought all to be made prior to severe weather setting in, for we must not wait until it has done so, and then regret the delay. Beds of *Lettuce* will also require their protection thrown over them; and the same may be said of *Cauliflowers*, and other things. *Parsley* that was potted some time ago must now be put into some place where it is likely to grow slowly and gradually. *Mint* and *Tarragon* may be hurried a little more if they are wanted at Christmas; and take especial care of *Cucumbers*, which, at this period, demand particular attention; and do not by any means allow them to have too many fruit on at this season, when they are denied one of that most necessary concomitants to successful culture—"sunshine." Keep the *Vine* also tolerably thin, and do not allow anything else in the same department with them, or disease will be engendered. The same may be said of *French Beans*; but the latter is more especially liable to shanking off,—one of the best antidotes to which, is liberal dusting with charcoal dust; a little more seed may be sown rather thickly in a pan, and remember, in forcing, to use only the very best-ripened seed,—large as this seed is, it is, perhaps, less able to support the infant plant in its first efforts to grow, than most other seeds of tiny dimensions. Attend to *Asparagus* in the course of forcing; see that it has not too much heat at first, otherwise it will come small and ill-flavoured; a little more may be taken up and put in heat,—gentle, at first if it can be so,—and afterwards, as it advances, more air or light may be given to it to improve its flavour. *Sea-kale* attend to as before; and all routine work may be proceeded with as weather and other circumstances suggest.

J. R.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

ONE of the most hardworking, honest men in our village, has just been called to his rest, and it may be a lesson to others to hear a little about his simple life; for an honest man is an example to all, whether clothed in purple and fine linen, or in the homely garments of the poor.

George M— had worked upon a nobleman's property for six-and-twenty years. He was what is called a hedge-carpenter, and had charge of all the park palings, fences, gates, &c., on the estate. His wife had been dead almost as long as his connection with Lord C—'s property, but he claved with the affection of a son to her old mother, with whom he lived ever after, and was wholly her prop and stay. His habits of activity were so natural to him that he seemed only happy when busy in his daily work, and his cheerful, contented face spoke volumes for his inward happiness. Every morning at four o'clock was he up and off to the park, a distance of three or four miles, and his work sometimes lay at a still greater distance from his home. We often used to meet him on summer evenings, plodding home through the dust, with his basket of tools on his back, and his poor legs scarcely able to endure the weight of the great, heavy boots worn by the labouring classes; but neither summer heat, or winter wet and cold, stopped this industrious creature as long as work was to be done.

He was a cottage gardener too. He had his allotment, which was one of the best and neatest, and after working hours, down he went, boots and all, to till his dear bit of ground; there was no hour of the day in which George M— was idle.

Of late years, however, he was a good deal tried by untoward times. The workpeople employed on the estate

were almost all of them discharged, and although George was never put off entirely, yet he worked fewer and fewer days in the week as years passed on; and work being scarce in the neighbourhood, he could not employ his spare time as he wished to do. He was a man to be *fully trusted*, and this was a means of blessing to him, for in the winter he could always be allowed to grub up roots in the garden and other places where men of only indifferent character could not be permitted to go, and it will be long before such another will be found to fill his place. He also begged for more land to keep his hands employed, and never did any slave labour more than he did to do his duty by the land, and pay his rent. Every one spoke well of him; he meddled with no one's affairs but his own, and, being a man of few words, no one could take offence at him.

At length he was attacked with sickness, and often laid by for days on the bed of acute agony. His groans and cries could be heard into the street, but they were not murmurings or impatience; he bore all with the most enduring resignation, and not a complaint, I believe, arose in his heart. The moment he found relief he was again on foot, and at his land; but every attack left him weaker and weaker, and we marked, with sorrow, that poor George was evidently getting past his work. His mother-in-law, an active creature at the age of eighty-eight, watched over him tenderly, and shed tears as his strength decayed, but he was gone when no one expected it, and she was suddenly left lamenting. He was ill for only two or three days at last, and by no means in such extreme suffering as he had been before.

On Wednesday he attended the week-day prayers, at

night he took to his bed, and never rose again. On Sunday he was visited by the proprietors of his allotment ground, and his great anxiety was about his rent. He was told to consider his rent as paid—to make his mind easy—to hold his land henceforth as free—but he could not clearly understand it; what with pain and deafness it was difficult to make him understand anything, but he hoped in a day or two to be out again, to dig up his crop, and he smiled and bid God bless his friends when they left his room. The next morning the passing bell tolled heavily in the distance. George M—— had departed during the night, in peace and hope.

Poor Betty sits by her fire-side in second widowhood. "When I lost my husband," she says "I had my children round me, but now I am all alone." George had been so long her only son; he had been so good and kind, and dutiful, that it is indeed a heavy bereavement to the aged widow. She misses his voice, she thinks she hears his wheel-barrow coming to the door, and everything she sees reminds her of him.

The testimony borne to George M—— by the agent of the property of Lord C——, is, indeed, a noble one. "He has been a true and faithful servant for six-and-twenty years; the park will never see his like again."

How good would it be for every labourer, for every servant, if such were their savour among men! How noble would be toil, the hardest, heaviest toil, if such were their walk and conversation! If example is better than precept, let the example of George M—— lead many others to "go and do likewise." But let them not try in their own strength, for they will find that fail. Let them seek health and strength from Him who alone can give it to them, and let them not doubt but they shall fully obtain it. The peace which the world gives cannot be called peace, but the peace of God gives also favour in the sight of man, supports us under manifold privations and bodily tortures which man cannot assuage, and is in itself an heritage such as kings may envy.

Now let us reflect that, rich and poor, gentle and simple, we all are servants of one master. Are we "true and faithful" servants to Him as George M—— was to his master? What testimony will be borne to *our* doings when the day of reckoning comes? We may slip through the earthly net that is spread for us; we may not be found wanting, perhaps, in man's eyes, which cannot see into the heart; but we shall never be able to slip through the net in which the Lord of heaven and earth holds us. We must be dragged ashore and singled out, the bad from the good, when the judgment-day arrives.

Let us then try above all things to approve ourselves to Him who "searcheth the heart." Man's testimony will stand us in no stead before Him who "trieth the reins;" it is a good *earthly* possession, and an honourable reward to worldly faithfulness, but we go into the presence of the Lord with nothing in our hands. Our only plea for mercy is the work which man's hand cannot do; our only covering from God's wrath, the garment "without seam, woven from top to bottom," which Christ has purchased for us with his own blood. Let us *all* remember this.

HINTS TO COTTAGERS ON THE MANAGEMENT OF PIGS.

(Continued from page 135.)

THE sow is very prolific. She commences breeding at from seven to twelve months old, and has two litters in the year. From the time she receives the boar, to the time she farrows, is sixteen weeks; and it should be so arranged that she may have her litter in spring and autumn. At the time of her parturition she should be shut in her sty away from all other pigs, with not *too much* straw, as the young pigs are apt to nestle under the straw, and the sow to lie down on and crush them. She should be in good condition, but not fat, and should be well fed. She is best left to herself, and the less worried she is, or looked at, the better; but, at the same time, she must be watched, as some sows are apt to eat their young. If you have such a sow, the sooner you turn her into bacon the better, she will never do you any good. If the sow has more pigs than teats, they should be killed;

nine or ten good plump pigs are far to be preferred to thirteen or fourteen half-starved, miserable-looking ones. The food should be given warm for the first few days, and after the end of the first week it will be a *great* advantage if the sow can be let out to have a run in a field for an hour or two each day. At six weeks old the sows, if for fattening, must be spayed, and the boars cut. This is generally performed by a man who makes such operations his business, and the charge varies in different places, but from sixpence to a shilling is the usual price. At the end of two months they may be weaned; this should be done gradually, increasing the time they are away from their mother every day. The sow should be then well fed, and as soon as the flow of her milk has subsided, she will be ready to receive the boar, which will be easily known by her uneasiness and other signs. It is usual to send the sow to the boar of some neighbouring farmer, and the charge is about 1s. 6d.; after this the sow requires little attention until the time for her littering comes round again.

Should it be thought desirable to purchase pigs for feeding and killing, it is advisable to buy them so as to be about fifteen or sixteen months old at Christmas. Suppose you buy two at three months old (they will cost about 15s.) in January, begin to fatten in the middle of September, and kill at Christmas, you will again be ready for another couple in January. The sty for the fattening pigs may be smaller than that for the breeding sow, but kept in every respect as *warm, dry, and clean*. If they are not already rung when you buy them, you must ring them immediately, and whenever the rings come out they must be immediately replaced. The ring is usually made from a horseshoe nail, flattened at the head, the point is passed through the grissel at the end of the nose, and bent round into the form of a ring, this prevents their rooting; as they will soon, if this be not done, not only do immense damage in the meadows, but also root up the paving of their sty. Before going further, I might mention that one great object in purchasing pigs for feeding and fattening is to get one of a quiet and mild disposition, or a "kindly" pig. Some pigs will eat as much again as others, and not get on a bit better. This cannot always be told beforehand, but there is a great deal in the look. The best way is always, if you can, to buy of those whose pigs you have found by experience to do well. There is a breed of pigs, a cross with the black China—and, I believe, the white China is much of the same disposition—which live almost on nothing; they eat little and get fat on it, but they are not the pigs for a cottager; they are more delicate, and kill best as young porkers at about six months old. They do not make good profitable pork and bacon, which is a cottager's aim.

During the summer the pigs may be fed on any refuse from the garden and the house (except anything in the shape of meat)—cabbages, potato-parings, apples, mangel wurzel leaves, and, in fact, anything from the garden that will serve to keep him during the summer, minding only to give him plenty, and one meal a day, of meal—that is, middlings, or anything of that kind; but the better the food is, the better the pork.

In the month of September the process of fattening should commence. They generally fatten best two together, and should be confined to their sty, and fed three times a day at *regular* intervals, taking care to allow them just so much food that the animal may be thoroughly satisfied, and the trough entirely cleared. By this plan much waste is saved, and they will fatten the most speedily and effectually, while needless waste is prevented. On being first shut up, they must not be overgorged with food, but the quantity should be gradually increased. The grand object now being to keep them quiet and happy, it is desirable to give any thing that tends to this end; for this purpose lettuces are admirably adapted, as they have a soporific effect. Some pigs are very fond of biting pebbles and bricks, and as I have never found it do them any harm, I often throw them a piece of soft brick, which serves to keep them quiet, and will prevent that grinding of their teeth which sounds so disagreeable.

They must not be allowed too much water, as it makes the food pass too quickly through their body; but, on the other hand, by no means let them thirst, as this will worry and distress them, and nothing can be worse; a good

supply of vegetables every day will serve, in a great measure, to prevent their thirsting, besides keeping their bowels in good order.

It is a good plan to measure them every week, by placing a tape round their body, close to their fore legs; and although many persons will pretend to give you their weight by this means, it cannot be depended on,—the object to be gained is that you may see how they improve every week. They ought to increase *at least* an inch to an inch-and-a-half each week. If you have the means of weighing them, so much the better. Youatt reckons in both fat and lean pigs, 20lbs. live weight equal to 12lb. to 14lb. when killed.

Skimmed milk (if to spare, for pigs always answer best where cows are kept) and at first middlings; in the course of a week or two to be changed to barley-meal, with a feed of corn every day, is the best. But all slops or messes of every kind must be avoided. *Skimmed milk and pea, oat, or barley-meal*, rank first in point of excellence with respect to quality of flesh. *Corn-fed* pork is next in value—peas, oats, and barley, being the best adapted grain. *Bean-fed* pork is hard and ill-flavoured. *Potato-fed* is loose, insipid, weighs light, and wastes much in cookery. To mix potatoes in the food of fattening pigs is deceptive, deteriorating the pork in exact proportion. *Clover-fed* pork is yellow, unsubstantial, and ill-tasted. Fattened on *acorns*, it is hard, light, and unwholesome; on *oil-cake*, it becomes loose, greasy, and little better than carrion. But the food must depend in a great measure on local circumstances. There are often things to be obtained in one part of the country which in other parts are not used; the best plan is, to consult the custom of the place where you live. But above all things do not grudge a fattening pig's food; he cannot eat too much. A poor-fed pig is worse than none at all; if you cannot afford to feed him well, you had better not engage in it. The food is best given warm; this will make a wonderful saving both in the food and the time they take to fatten. But again I say, keep them *warm, dry, and clean*. A pig thus kept will be subject to few diseases; but it is desirable to give fattening pigs some sulphur occasionally, and a handful of salt mixed in their food every day is a great improvement. Should it be necessary at any time to give a drench to the pig, you must bear in mind that swine are very easily choked, and too large a quantity of fluid put in their mouth will choke them in an instant.

I most cordially recommend every cottager who has the means, and who makes up his mind to do it properly, to keep a pig. Many are the advantages to be derived from it; and what can be nicer than a cottager to come home after a hard morning's work, and sit down to dinner off a good piece of bacon or pork, and that of his own feeding.

W. H. W.

HINTS ON ROSE CULTURE.

1. **THE CLOTH OF GOLD ROSE.**—This is a most magnificent Rose, but, unfortunately, a very shy bloomer in most soils. I was asked by a clergyman's wife last autumn, "If I knew of any plan likely to throw her Cloth of Gold Rose into bloom?" I recommended her to try a custom the French adopt with their fruit-trees, viz., to remove the soil carefully from the surface of the roots, and apply cow dung. This was done in November. The tree made wonderful and vigorous shoots, and produced nearly a dozen of the most beautiful blossoms in the early summer. The good lady, however, thinking, I suppose, that her tree "could not have too much of a good thing," gave the roots a second and similar stimulus in June, and the result was that the poor tree withered and died. Now I should recommend your readers to try cow dung and leaf-mould, in moderate quantities, this month, in the way I have described; should they succeed, as they probably will, (supposing, of course, that their plant is a well-established one) perhaps they would kindly let you know the particulars.

2. **AS TO THE MANAGEMENT OF BUDDED STOCKS.**—Six or seven weeks ago I saw in a clergyman's garden in this neighbourhood some thirty or forty standard Rose-trees, with very nice little heads, some blooming the first time, and some the second time this season. These were all budded early last June. My friend's way was this:—As

soon as it was ascertained that the inserted bud had "taken the briar was cut off close to it. I am perfectly aware that most gardeners and rose propagators would prefer the inserted bud to remain a bud till the following spring, lest the frost of winter should kill the unripened wood of a delicate shoot; but I assure you and your readers that the trees ever—even at the time I have mentioned—looked mature and strong enough to encounter the frost and wind of winter and early spring. And thus, clearly, one year growth is gained.

3. **COVERING SPARE BITS OF WALLS WITH ROSES.**—If very high briar-stocks were planted by a stable, for instance, or coach-house door, the stems neatly protected by long strips of board (as people do their vines outside their premises) and budded, carefully shading them if in a warm situation I am certain many a nice snug, warm bit of wall, now unoccupied, might help to bring into first-rate bloom the most delicate and beautiful of the Tea-scented class. Roses—*Abricoté, Pactole, and Safrano*.

I went over Messrs. Paul's Rosary in the summer, and saw, for the first time, a beautiful Perpetual, which I can confidently recommend to your readers, the *Vicomtesse Cazes*. There is another, also, that I have bloomed here as a standard—the *Archduchess Thérèse Isabella*. These are first-class Perpetuals, and well worthy of a wall. In budding, I recommend a cotton bandage that is manufactured expressly for the purpose, and answers better than bast.

E. C. H.

LABELLING PLANTS.

IN THE COTTAGE GARDENER, I observe a short article on the subject of making labels for plants; but like the other modes which have been suggested, I fear it will be equally unsuccessful; and if it even should be successful, which I very much doubt, there is still a most decided objection to the material of which the label itself composed.

Of all substances which have as yet been employed for garden labels, there is none which is so objectionable as zinc, for besides the difficulty of marking them permanent there is also a difficulty in finding a material with which to attach them to the plants. If iron wire is made use of, soon corrodes by exposure to the atmosphere; copper wire is soon decomposed and cut through by the galvanic action which takes place when it is brought in contact with the zinc; zinc wire is too brittle; metallic wire too soft; and twine is not sufficiently durable. All these I have tried for labelling the trees in my orchard, and have invariably failed in attaining my object; indeed, there is no one thing which has cost me so much trouble and botheration as these zinc labels, and my experience of them has not been very limited, for I have had upwards of 1200 of them written, wired, and attached at one time; but within twelve months they lay as thick on the ground as leaves in autumn. It matters not what they were hung with—iron, copper, and metal wire all shared the same fate.

That which I have now adopted is a simple wooden label made of good yellow deal, and fashioned to whatever shape best pleases my fancy. When I wish to write upon or mark I rub the smoothed side slightly with thin white lead or linseed oil, as is usual with common wooden labels, instead of a black lead pencil. I use one of red chalk, ruddle, keil, or whatever you choose to call it. This being an oxide, instead of being obliterated by exposure to the weather, the writing remains as permanent as ever. I have before me now labels which have been ten years constantly exposed to all weathers; and though some of them are actually green, when that is lightly washed the writing is clear and distinct. These labels I use extensively, and so can speak of them with confidence. The way by which I suspend them on the trees is by copper, or thin metallic wire, and such is the opinion I have formed of them, that I would not, on any consideration, use either a zinc, or the finest china label that ever was made. They may do very well for window or drawing-room gardening, but for general and permanent purposes they are useless, as worse than useless, they are troublesome. **HODMAN.**

TO CORRESPONDENTS.

. We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of The Cottage Gardener, 3, Amen Corner, Paternoster Row, London."

FERNS FOR WARDIAN CASE (Cymro).—In a Wardian case, ferns that grow in the crevices of rocks do not thrive long; they seem to want the fresh air of their native habitats. Those you mention will all do well, except the following:—*Ceterach officinarum*, *Allosorus crispus*, and *Asplenium septentrionale*. The case may be kept on a balcony, excepting during the severest months of winter; then it should be taken into a cool room, to shelter it from the frost.

TEN WEEKS' STOCKS (S.).—You are quite right in supposing that we did not know how these were grown for the London market; but after your flagellation we applied to a London nurseryman, and his reply is as follows:—"We are surprised you do not succeed; however we will try to instruct you. Sow the seeds on a warm border in August; transplant the seedlings, three or four together, into a four-inch pot; plunge the pots up to the rim in a frame within five inches of the glass; give air every fine day, and water very seldom, only when the plants actually droop. Early in the spring—about the end of March—plant them out in the border, and when the flowers appear, pull away all the single flowers, leaving only the double ones, the difference between which may be easily seen: the single flower-buds are long and thin, but the double ones are short and thick. The roots of both single and double are exactly alike, and consequently there is no telling by the roots which are double and which are single. A second sowing in March will succeed the autumn sowing. It may be either on a gentle hotbed, and transplanted into the flower-border in April, or in patches in the border at once. The reason you do not succeed may be owing to the soil in your borders being too wet and heavy. The Stock loves a light, rather gravelly soil, well enriched with very rotten dung. Double Brompton Stocks can be propagated by slips as easily as the double wall-flowers. The shoots, or slips, to be used for this increase must be such as would not flower. These are easily known by the fact that they will not show bloom. Take them off, trim off the lower leaves, and place them either in pots, in sand, under a cold frame, or plant them in a prepared soil under a hand-glass, in a shady part of the garden. This way of propagating the Double Stock is, however, scarcely worth the trouble, as the plants never succeed so well, or flower so finely, as seedlings."

ENOCHERA CARPATICA ALBA, &c.—A. B. writes to us as follows:—"Enochera carpatica (white) can be purchased at Mr. H. Green's, Florist, Cambridge. Mr. R. Errington says, in THE COTTAGE GARDENER, that he has no doubt but that the *Geranium Quercifolium superbum* exists somewhere. I have a few plants of it, and would send Mr. R. Errington a plant of it, if he will inclose me six postage stamps, directed to A. B., Mrs. Bineham's, Love-lane, Wandsworth, Surrey."

VINES IN POTS (Leytoniensis).—Your system of pot-vine culture is under full consideration. A paper will be shortly given on this subject, which interests many of our readers. It will be soon enough to commence operations this way in the new year.

PEACHES AND NECTARINES FOR FORCING (Lucubator).—Of Peaches, Royal George, Noblesse, and Bellegarde; and if a very long succession is required, the Late Admirable. Of Nectarines, Elruge, Violet hâive, Duc de Tello. All these are named about in the order of their ripening. You will require about five trees.

HIVES (A Novice in Bee-Keeping).—In reply to your query, "A Country Curate" says, "I have to state that the inside diameter of the hoop, at the bottom of my hive, should be about the same diameter as the inside of the lower band of straw. For instance, supposing that that diameter were fifteen inches, such also (but rather more than less) should be the inside diameter of the hoop. The 'tube,' or ring of iron, which my hive-maker uses, is about one-and-a-quarter inch in diameter; but one inch is quite large enough, provided it be inside measure. However, the thicker the straw the better for the bees. A one-and-a-half inch diameter ring would not be at all too large. Your correspondent need not fear for her hive, provided the bees are well supplied with food, are sufficiently strong in numbers, and have a queen-mother not too old."

ORANGE GLADIOLUS (B. L.).—It is high time now to take up the roots of your Orange Gladiolus, which we take to be *G. peltatus*; and the beginning of April will be time enough to plant it again. Take particular care of the swarm of very small bulbs which you will find clustered at the bottom of the large bulbs; every one of them will make a flowering bulb in two more years. You may set them at the same time with the large ones, and along with them if you like, but they will not flower next summer.

MOVING A CEDAR OF LEBANON (Rev. J. H. P.).—We should not be afraid to remove your cedar, seven feet high, at once; but the safest way would be to cut round the roots next February, and about a yard from the stem, and to remove it about the middle of next September.

CAMELLIAS (Ibid.).—Large Camellias that do not flower, are either too luxuriant, or they are so bad at the roots as to be in real danger, so that it is difficult to know how to advise. You can do nothing for them at present, however, and if you let us know their actual condition any time before the end of February, our advice will be in season. You have found *Sulphate of Ammonia* an excellent stimulus for *Dahlia*s; it is equally so, if not better, for *Hollyhock*s.

PILLAR ROSES (Gladiolus).—The best three roses in your list, to train over the three iron pillars, are *Myrianthea*, *Princess Louise*, and *Amadis*. We suppose that you will unite the three pillars at the top. These roses are not strictly pillar roses, but they will cover your triangle in two years, and when they reach the top we propose each of them to be trained down the opposite pillar. *Mrs. Elliott*, *Amenalde*, and *Gloire de Rosamere*, are the next best in your list, and are true pillar roses; for the height of your pillars (six or seven feet), it would take them about four years to reach the top, and they would require no back training. *Amadis* is our favourite; *Crimeon Boursoult*, *Myrianthea*, and the *Princess* are also good to bud others on.

ROSE INSECT (Paul).—We sent your note to a celebrated entomologist, and this is his reply:—"Your rose-leaves exhibit the tortuous dark lines formed by the small caterpillars of *Tinea ruficapitella* feeding between the two surfaces of the leaves. It is not likely that the same species attacks the Clematis, although that plant may be infested in a similar manner by another allied species of the same genus. The only way to get rid of these mining larvae is to pinch the leaves sharply when they first appear. The rose-leaves sent had also several holes nibbled in them; it is quite impossible to guess which of the many rose insects has done this."

PRESERVING EGGS (A Constant Reader).—One of the most successful preservers of eggs we ever knew, was a notable body who greased each new-laid egg very carefully all over with suet, and stored it in a cold place. They kept good from Midsummer until after Christmas.

TRANSPLANTING WHEAT (J. T. C.).—Your communications have been received, and shall be arranged for publication in our next double number. Be assured we are not offended.

PLUNGING MATERIAL (H. I. O.).—We recommend you to use sand in your propagating-house. It is the most cleanly, and not liable to harbour either fungi or insects.

NEW ZEALAND SEEDS (Bertram).—Thanks for these; but we fear they are too old. The cover for the volume can be had of Messrs. Orr, Amen Corner, Paternoster-row.

CELERY PRIZES.—A correspondent (Phos) says, "Having exhibited celery, two heads, at a 'Practical Gardener's Society,' they were acknowledged by the judges to be the best grown, and of the greatest weight, of any that were exhibited; but still they did not give me a prize, in consequence of the celery not being, as they said, of so fine a flavour as smaller grown heads. Is this a correct judgment, and if so, how is the crispness and flavour to be obtained? I cultivated mine according to the directions laid down in THE COTTAGE GARDENER, and beat them all as to size." Are there no rules acknowledged by the society by which the decision of the judges is to be regulated? If there are no such rules, then we consider the judges right in their decision, if the celery to which they awarded the prize was fine in growth, though not equal to yours in size. Quality in anything eatable is far more desirable than excessive size. Great size, good flavour, and crispness, however, are all combinable in one specimen of celery; and your failure in obtaining the two last-named qualities, probably arose from a deficient supply of water and imperfect blanching.

GOOSEBERRY CATERPILLARS (C. J. B.).—It will be quite useless for destroying the chrysalides of those vermin to put salt thickly about your gooseberry bushes, and such a strong application might be fatal to these. In the spring spread some quick-lime round each bush, and just point it into the ground with a spade. This will destroy many of the marauders, but still some of the moths will come forth. As soon as their progeny, the caterpillars, appear, dust these with White Hellebore powder.

POISONED GUINEA FOWLS (A New Subscriber).—Our correspondent sent us seeds taken from the crops of three of his guinea fowls, who appear to have died from their effects. These seeds prove to be those of the *Daphne Mezereum*, *Mezereon* or Spurge Olive. This fact deserves the attention of all poultry keepers.

TARES (S. E. H.).—Whether you mean the green plant or the seed, you do not state, but neither of them are injurious to poultry.

VINE BORDERS (J. W.).—You will have seen what we say at page 140, relative to covering these. We consider such covering most desirable, for both practice and science dictate that the root and the leaves ought to be excited to action together. There is no doubt that an old vine-border is benefited by being manured. A peck of crushed bones, and a good barrow-load of thoroughly decayed stable manure, pointed in every spring, will benefit your vine-border, twenty-five feet by fourteen.

FIVE YEARS SHIFT SYSTEM (L.).—As you can only use "portable manures," we should manure for the oats with the urate of the London Manure Company; for the barley and grass seeds, with peat-charcoal, and super-phosphate of lime; and give a slight top-dressing with the urate each spring, of the 3rd, 4th, and 5th years, when you purpose to graze.

COW CABBAGES (Enquirer).—It will be useless for you to transplant these from the seed-bed now, to retard them for planting out in May or June; they would only run up to seed next year.

KOPROS AS A MANURE.—Messrs. Weeks of Chelsea, state of this new preparation of phosphate of lime:—"We beg to inform you that we have used this summer the new patent Kopros, prepared from nitrogenous matter, in combination with superphosphate of lime, which is very excellent, causing the plants to grow rapidly, but robustly, and turning the foliage of a dark green colour. It is altogether well adapted for plants generally, but for those grown in pots, it is invaluable."

PORTER (Evergreen).—Tap it; and if fine enough you may drink it. Six months is quite long enough after brewing.

STORING PARSNIPS (J. S. G.).—Authorities differ upon this point, but we coincide with your gardener. Our own practice is a medium course between that of taking them up and storing them, and leaving them where grown. We take them up at this season and lay them in rows, touching each other, in some out-of-the-way corner of the garden. By this means we preserve them plump, full-flavoured, and unvegetating until late in spring, and we have the bed where they were grown vacant for another crop. For the *Young Man's Society* you mention, and to give them the information you wish, circulate among them *Richardson's* shilling volumes on *The Cow*, *The Dog*, *The Pig*, *The Horse*, and *Poultry*; *Cut-hill's Market Gardening about London*, and *The Cottage Gardener*.

NAME OF PLANT (Wheelbarrow Jack).—Your plant is, we believe, the old *Verbena pulchella*. This, like too many other good plants, is almost lost sight of now-a-days.

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WEEKLY CALENDAR.

M	D	DECEMBER 11—17, 1851.	WEATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
11	TH	Grosbeak seen.	29.014—29.926	45—40	S.W.	—	58 a. 7	49 a. 3	6 46	18	6 40	345
12	F	Moles' hills seen.	29.944—29.932	50—30	S.W.	02	59	49	7 59	19	6 12	346
13	S	Red-throated Diver comes.	29.817—29.717	50—36	S.W.	05	viii	49	9 15	20	5 44	347
14	SUN	3 SUNDAY IN ADVENT.	29.724—29.418	54—36	S.W.	21	1	49	10 34	21	5 16	348
15	M	Tufted Pocher comes.	29.453—28.934	55—36	S.W.	30	2	49	11 54	22	4 47	349
16	TU	Cambridge Terms ends.	29.334—29.015	48—32	S.W.	06	3	49	morn.	23	4 18	350
17	W	Oxford Term ends. EMBER WEEK.	29.376—29.103	44—37	S.W.	02	3	49	1 14	24	3 48	351

He who would dig a mine, must not employ himself with making many small holes, so he that would penetrate deeply into any branch of knowledge, must not ramble in his studies from one science to another. There are some minds, as that of Lord Bacon, which seem, like *Encyclopædias*, intended to embrace all learning. These, however, are the exceptions, for usually no man attains to excellence in any department of art or science, who does not devote himself to it exclusively. One of our greatest legal authorities acknowledged this when he said—"Mother Law must lie alone;" and it would not be difficult to gather a volume of authorities together, bearing testimony to the opinion, that every art and every science is a jealous mistress, demanding all the attentions and the exclusive love of her votaries.

There have been men who have devoted themselves even to the study of one author. Shakspeare has had such devotees, and, indeed, there have been so many who have thus concentrated their thoughts, that we think Mr. D'Israeli wrote an essay "On men of one book," but he omitted from it that large class of happy ones, who, like Collins, the poet, can lay their hand upon their Bible, and say: "I have but one book—but that is the best."

We have often wished that there were more one-book men, and we were never more strengthened in the opinion that we should then have sounder information upon each subject thus sedulously studied, than by the two volumes now open before us, *Dickson's Husbandry of the Ancients*. Apart from his clerical duties, the leisure of their author's maturer years were devoted to this subject, and the result demonstrates that those who have estimated that that husbandry was based on ignorance, only betray their own. No one who considers justly how the Grecians and Romans excelled in all the fine arts—and learns from the fragments which remain to venerate their skill in architecture, sculpture, and literary composition—could conclude that they were unskilful in the more essential arts of life. Yet many writers have so concluded, and nothing is more usual than to find "the barbarism of the Roman agriculture" dismissed in a single sentence. Yet the very school-books of such dogmatists might have taught them to arrive at a different conclusion, for they could not read that Cincinnatus, Fabricius, Dentatus, Serranus, Regulus, Cato, and Scipio, were as distinguished for their agricultural skill as for their other triumphs, without the suggestion arising that such minds devoted to the culture of the soil could not have done so ignorantly. Pliny testifies to the truth of such a natural suggestion, when speaking of fruitfulness of Italy in those days, for he asks—"Was that fruitfulness because the lands were cultivated by the hands, even of generals, who ploughed their fields with the same diligence that they pitched their camps; and sowed their corn with the same care that they arranged their armies for battle?" If agriculture had been neglected, would such works as those of Cato, Columella, Varro, Pliny, and Virgil, have been written? Most assuredly not, for authors do not write upon subjects for which few readers are anticipated.

Putting aside inferences, let us come to facts, and taking these from the volumes which led to the present notice, we are bound to acknowledge that the Romans were our equals in almost all the practices of agriculture, and where we are superior, the superiority arises chiefly from the greater excellence of our implements. We must confine ourselves to a single instance, and this shall be *deep-draining*. It was but the other day that a public speaker, when demonstrating the improvement of modern over ancient agriculture, quoted this draining as a remarkable instance. The fallacy of the example is shewn by the fact that it was practised by the Romans before the Christian era, or nearly two thousand years ago. Our proofs are here. Mr. Dickson's work says:—

"Open drains are easily made; more care and attention are required in making covered ones. The way of making these, and the manner of applying them, we have from the Romans, who used both kinds. A particular description of them is given by almost all the rustic writers. *Cato*, the oldest writer, directs covered drains to be made in this manner. Treating of the culture of Olives, he says:—'If the place is wet, it is necessary that the drains be made shelving, three feet broad at the top, four feet deep, and one foot and a quarter wide at the bottom. Lay them in the bottom with stones. If there are no stones to be got, lay them with green willow rods placed contrary ways; if rods cannot be got, tie twigs together.' *Columella* describes both the kinds of drains, in these words:—'If the land is wet, the too great abundance of moisture may be dried up by drains; of these we know two kinds, covered and open. In stiff and clay soils, they are left open; but, where the soil is of a looser

nature, there are some open, but likewise some are covered, placed so that the mouths of the covered drains may let the water pass into the open ones. But it is proper to make both the open and covered drains shelving, broad at the top, and narrow at the bottom, like roof tiles turned upside down; for those whose sides are perpendicular are soon damaged by the water, and are filled with the falling of the earth from the top. Again, the covered drains are to be made three feet deep, half filled with small stones or clean gravel, and the earth that was dug out thrown over them. If there are no stones nor gravel, let twigs be twisted like a rope, and formed to the exact thickness that the bottom of the narrow ditch requires, so as to take it in fitted and pressed into it. When this is stretched along the bottom, let cypress or pine, or, if there are none of these, any other leaves, be pressed upon it, and then covered with earth; at both ends, however, after the manner of little bridges, two stones should be placed, by way of pillars, and one laid on the top of them to support the bank, lest the earth should be carried away by the falling down and issuing out of the water.' Pliny expresses himself on this subject in this manner:—"It is very advantageous to cut and dry wet land, by drains. These ought to be left open in clay soils. In looser soils, they ought to be strengthened with hedges, or they ought to shelve downwards, to prevent them from falling in. Some of them ought to be covered, and drawn into others larger and more open. If there is occasion, they may be laid in the bottom with flint or gravel. Their mouths on each side ought to be supported by two stones, with one laid over them." *Palladius* says:—"If the land is wet, it may be dried by drains drawn from every part. Open drains are well known; covered drains are made in this manner. Ditches are made across the field three feet deep; afterwards, they are filled half way up with small stones or gravel, and then filled to the surface with the earth that was thrown out. These covered drains are led to an open one to which they descend, so that the water is carried off, and destroys no part of the field. If stones cannot be got, branches, or straw, or any kind of twigs, may be used in their place."

We have barely room to extract from the same work this brief memoir of its author, the *Rev. Adam Dickson*. He was a son of the Reverend Mr. Andrew Dickson, Minister of Aberlady, in the county of East Lothian. He had a liberal education at the University of Edinburgh; and, having a very promising genius for learning, was always designed for the church. His father, however, having a large farm, he early turned his thoughts to agriculture; and, in his youth, passing some part of his time with the farmers of that opulent county, who are many of them not unfit to converse with men of letters, he, from them, as well as from his own observation, acquired the exact knowledge of facts, and of the practice of husbandry. Being a man of a very lively apprehension, of an ardent mind, and of a clear and sound judgment, he soon became an adept in any branch of science to which he applied. Mr. Dickson was ordained minister of Dunse, in the shire of Berwick, in the year 1771. As his settlement had been delayed for a considerable time, on account of a law-suit about the legality of the presentation, an opposition to him was stirred up in the parish; but such was the ability, good sense, and engaging temper of Mr. Dickson, and such the candor and generosity of his conduct, that his most sanguine opponents very soon became his greatest friends. Our author resided for twenty years in Berwickshire, where improvements in agriculture having been much more recent, and the difficulties to be surmounted much greater than in East Lothian, he had occasion there to observe the most spirited exertions by the cultivators of land. This change of situation enlarged his views, and extended his knowledge on the subject of his favourite pursuit. In the year 1770, Mr. Dickson returned to his native county, having been translated from Dunse to Whittingham, in East Lothian, where he lived but a few years; he was killed by a fall from his horse, on the 25th of March, 1776. No man could be more universally regretted among the circle of his acquaintance than he was; not merely on account of his respectable abilities as a clergyman and a scholar, but still more on account of the unbounded benevolence of his heart, and the peculiar frankness and promptitude with which he gave his assistance in advice, or in credit and support, to every person who had the smallest title to ask him.

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 46.4° and 34.3° respectively. The greatest heat, 57°, occurred on the 17th in 1839, and the lowest cold, 11°, on the 13th, in 1846. During the period, 95 days were fine, and on 73 rain fell.

In answer to the invitation we gave some time since, we have received several communications informing us of the implements used for gardening purposes in various localities. We hope that others will contribute similar information when they observe the valuable suggestions thus afforded.

We shall begin with *The Wheelbarrow*, and by

observing, as we have before done, that the greater the diameter of its wheel, and the smaller the axis or spindle on which that wheel turns, the less power will be required to drive it forward; for the friction is proportionately reduced.

The diameter of the wheel might be increased with manifest advantage to double that now employed, for

even then it would be below the point of draught or impulsion (the hand of the labourer); and the nearer it can be brought to a level with this, the more efficiently he exerts his power.

The breadth of the wheel's periphery, or felloes, might be also increased two inches advantageously; for, as it is always employed upon a surface in some degree soft, such an increased breadth would decrease the depth to which the wheel of a loaded barrow usually sinks into the soil, and would proportionately decrease the power required to overcome the augmented opposition. In a wheelbarrow so constructed, a man might move with more ease eight hundred weight, than he now impels five hundred weight, which is a full barrow load.

If a wheelbarrow be made of wood, the feet and handles should be capped with iron, and its joints strengthened with bands of the same metal. Iron barrows are now made weighing no more than ninety-two pounds, and they run very lightly.

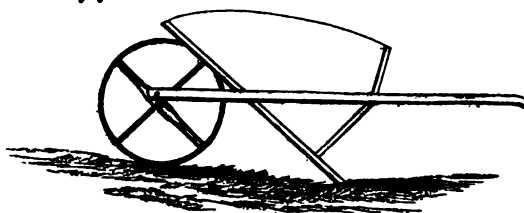
The longer the handles of a wheelbarrow are, and the nearer the load to the wheel, the easier is that load lifted, and the easier is the barrow turned over to discharge the load.

Our able coadjutor in the kitchen-garden department, writing to us on the same subject, says:—"Although we have gardened in five counties of England, and these wide apart, we never saw but some two or three *wheelbarrows* that approached to what we would wish a garden one to be; and so often have our directions in the make of this indispensable vehicle been marred, in some of its parts, by the unwillingness of wheelwrights and others to depart out of their usual path, that we have almost despaired of ever obtaining a really cleverly made, useful article. The demand for garden barrows, unlike that for those used in common excavations, has never been so extensive as to call for any extraordinary mechanical skill in their construction; and while the *navvy* has the sides and head of his carriage arranged with mathematical precision to the proper angle, we of the blue apron are often compelled to push before us a sort of a packing-box-looking contrivance, mounted on a frame and wheel which deals out a description of music, that tells in unmistakable language what barbarous machinery is at work. Now we must confess it is no easy matter to explain on paper what we would like to see adopted; every labourer can tell tolerably well by a single look whether the one before him is a "right one" or not. We must, therefore, dwell only on general principles, which are these: let the barrow be made with the sides only gently sloping outwards, the head more so, and to project so far over that a considerable part of the load may be thrown on the wheel when the handles are lifted up; nevertheless, a distance of not less than two inches should intervene between the head of the barrow and rim of the wheel. The wheel must be of wood, in the 'spoke and felloe' make, and an iron tire of about two-and-a-half or three inches wide. The axle being wood may have iron gudgeons, but these must not by any means run in the iron thimbles so common in many barrows, a week's work will wear them out in

such a place, besides the everlasting noise attending them, which no greasing (unless hourly) could prevent. We like them to run in blocks of wood; beech is best, nailed to the end of the shafts. The smooth and noiseless manner in which the wheel performs its evolutions entitle it to some consideration, independent of its durability. We may add that the 'tail-board' ought to be made fast, but need only be about half the depth of the sides. The plan of having it to take out and put in when wanted, very often leads to its not being forthcoming when called upon; and the certainty it has to fall out, when the barrow is emptied, very often tempts the operator to dispense with it altogether. For grass or leaves a useful hand-cart is preferable to a barrow, but the wheels ought to be broader than is usually seen in those used by tradesmen; and they ought to be made to upset cleverly, which a large barrow is difficult to do."

The best wheelbarrow of which a drawing has been sent to us, is from Mr. C. E. Wells, but he has not favoured us with his address. He says:—

"I venture to forward a rough sketch of a barrow, which my ancestors originated and have used many years. We have hitherto used and considered it as one involving less labour (or weight upon the man) from the load conveyed than any other we are acquainted with. Again, the box of the barrow is large compared to those in general use, and will take a good *bulk* (which in gardens is frequently of as much importance as weight) of light materials. Another recommendation is, that when wheeling and pitching soil over the wheel, the load readily leaves the barrow. Made of oak they last many years.



Diameter of bed of barrow, 1 ft. 10 in.; diameter of barrow at top, 2 ft.; handles spread at the workman's end, 2 ft. 1 in.; handles spread at wheel end, 1 ft. 11 in.; wheel 2 inches wide, the periphery has an iron tire, a stout wood axle, with an iron pin at each end working in an iron eye."

These are not the only modifications of the wheelbarrow which have been suggested to obviate its inconveniences, for the accompanying sketches represent wheelbarrows proposed as long since as 1766, to remove objections attendant upon that still generally in use.

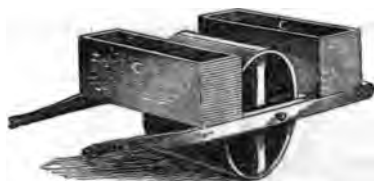
No. 1 has a broad wheel, three feet in diameter, passing through the centre of the barrow, but covered



over by a box. The object of this is to have the load

in equilibrio, so that no other labour is required but to press or drag it forward.

No. 2 is merely the iron cylinder of a garden roller fitted with two bins, the fronts of which, *c c*, slip out, to enable the earth or other load conveyed in them to be



easily tilted out. This barrow has the advantage of not cutting into the walks or grass over which it is driven.

THE most promising suggestion for the improvement of fruit-culture, arising from the reduction of the price of glass, is that just made by Mr. Charles Ewing, gardener to O. F. Meyrick, Esq., of Bodorgan, in Anglesea. His proposal is to train the fruit-trees in a hollow wall of glass, or, rather, between two such walls united by a coping, and this coping is of glass also. Provision, of course, is made for ventilating, and extra care will be required in shading. Those who have walls of brick, we would recommend not to run hastily into the expense of erecting others according to Mr. Ewing's plan, because they might, with less than half the expense, have glazed shutters attached to their present walls, and we think that in early ripening of fruit, they would not equal walls so protected. Mr. Beaton, who saw Mr. Ewing's model at the Horticultural Society's Rooms, on the 2nd instant, writes to us as follows:—

"I have just seen the glass walls for which a patent is taken for the three kingdoms. It was stated that they could be put up, nine feet high, at fifty shillings per yard, which is cheaper than brick walls. There can be no question about their answering very well for many purposes about a garden, but I would as soon let a bull into a china shop as put them up for boundary walls, as some people talk about! The construction is quite simple, and there is no novelty in the application; but the idea is exceedingly good and well carried out. The glass wall, or walls, according to two models which were exhibited before the Horticultural Society to-day, are made, in one model, of upright sashes, moving right and left on rollers; and in the other model, the sashes, or what might be called glass doors, were fixed like and opened out just as would so many doors. The application of the principle involved in the upright iron columns which form the frame-work of these glass walls, was shown in *Loudon's Gardeners' Magazine* many years ago, and, as far as I recollect, by Mr. Mallet, of Dublin. But the best idea of them that I can give you from memory is this: suppose that the posts which carry the telegraphic wires were made flat, with projections upon both edges, at nine inches or a foot apart, from the ground line to near the top, and one of the telegraph wires run along from one projection to another, the whole way up the post, when one side was finished it would look like a wire espalier in a kitchen-garden; and when the projections on the other side of the posts were filled, you have a double espalier with only one row of posts. Well, you have only to suppose a set of sash-glazed-frames set up quite perpendicular on either side of this double espalier, and a little distance from it, and you have these glass walls in representation, and the trellis for the trees between them. I understand that the two glass sides stand two feet apart; and in the models the top, or coping, part is shown like the roof of a house. The trees, or other plants, to be protected, are to be trained on the

wires, so that we have two sets of trees in the space between the glass; and if we want to make a south and a north aspect, when the wall runs east and west, there is a groove on each side of each post to receive sheet iron, or slates, or boards, which fall down between the two espaliers, making a south and north aspect. In short, Mr. Mallet's slate or iron walls are here protected with Sir Joseph Paxton's sliding sashes, and the walls may be taken away, or they may never be made, and still the trees, &c., are protected with glass. Altogether I was much pleased with this contrivance, and were it not for the misfortune of having them patented, I should have a great many suggestions to offer for the various uses to which they might be applied in every part of the garden, but in all my experience I never knew the patent laws to advance us one single step in gardening."

GARDENING GOSSIP.

AFTER thirty years service our able coadjutor, Mr. D. Beaton, has retired into private life, but we are sure our readers will be glad to hear that this does not involve his retirement from the pages of THE COTTAGE GARDENER. He will still bear rule over its Flower Garden department, and he has fixed his residence near London, that by easy access to the gardens and societies in and around the metropolis he may be the more able to enrich our pages. He has retired as all veteran gardeners ought to retire, still vigorous and capable of enjoying that independence which his own ability, industry, and integrity have won; and loaded with tokens of the high esteem in which he was held by his employers. We know the high opinion Mr. Beaton entertains of his successor, Mr. Davidson, and we mention this because no better demonstration could be afforded of the excellent feeling pervading all parties whilst the parting cup was preparing, that for the last six weeks of his remaining at Shrubland Park, Mr. Davidson was there also. Mr. Beaton is now under his own vine, and as he has no family to provide for, and does not purpose to speculate by engaging in any business, we trust that when he reaches to fourscore years and ten he will be able to repeat these words of another old cultivator—"Labour has made me healthy, contentment has kept me independent, and the blessing of God has made me happy."

A correspondent, "J. T. C.," has obliged us with the following note:—

"The *Littæa Geminiflora*, is now flowering at Claremont, the property of the King of Belgium, where it has continued to produce a succession of blooms during the last three months. The plant, although but fourteen inches in height, has produced a spike not less than fifteen feet high. (This plant has been cultivated at the Royal Gardens more than twenty years, but this is the first time of its flowering). The *Littæa Geminiflora* is a native of America; Order, Bromeliaceæ (Amaryllids?), and was introduced to this country in 1810. The colour of the flower is a yellowish green. The soil best suiting it is stiff loam. Temperature, in summer, 70° by day, and 65° by night; winter, 65° by day, and 60° by night. It should have a plentiful supply of water while producing flowers, but at other times sparingly. The *Littæa* is not worth cultivation, unless where a collection of *Aloes* is kept, but to them it is a very good addition. The foliage as well as the flower is very graceful, but its shyness in flowering renders it less desirable."

There are many movements and changes taking place in *Floricultural literature*. We have long had a *Mid-*

land Florist, very well conducted by Mr. Wood, florist, of Nottingham; we are now to have a *Southern Florist*, edited by Mr. Knight, florist, of Battle, in Sussex, some of whose papers have appeared in our columns; and we are also to have a *Northern Florist*, presided over by Mr. Slater, florist, of Manchester. Scotland is to have another, and why should Ireland and Wales be without theirs? Some of these and other changes are thus noticed by a correspondent:—

"Since I wrote about changes, Mr. Slater's two-penny monthly magazine for Manchester, and a northern rival in Scotland, at the same price, by the able compilers of the "Scottish Agricultural and Horticultural Journal," have been regularly announced. The former is one of those unmistakable writers who call men and things by their right names. The Scottish Journal is good in some respects, because it borrows from others; how far the magazine is to live on such means is at present doubtful. Mr. Turner, florist, of Slough, is installed as owner of "The Florist," and as it would be difficult to make any change for the worse, we look for improvement. "The Companion to the Flower-Garden" is to be edited by Mr. Moore, who is not only a practical gardener, but a good botanist, and some first-rate contributors are engaged; but it is not, like the *Gardeners' Magazine of Botany* from which it has arisen, to be essentially scientific, but will be a practical guide and companion for the cultivator. From what I hear, I conclude it will be more in the style of the old "Horticultural Journal," but with two coloured plates and wood engravings."

A clergyman, from the neighbourhood of Cloyne, in the south of Ireland, has obligingly communicated the following particulars, which will make some of our floral friends linger, for the climate that is so near to them, yet so different from that in which they are shivering:—

"The *Belladonnas* did not seed this year, though they bloomed beautifully. Of half-hardy things, the *Sollya heterophylla*, and *Salvia splendens*, are still in bloom, having been so for many months. The *Sollya* is increasing wonderfully, getting into a large shrub. The *Escallonia* is also yet flourishing in blossom, and going to seed. The *Verbena* (Lemon-scented. *Aloysia*) are quite large trees in this neighbourhood, in the old gardens,* as also the *Myrtles*. The *Lily of the Nile*, or at least what is called by that name, is always left out in the borders; it blossomed splendidly this year, and bore a quantity of seed. (The *Calla*, or rather *Richardia Ethiopica* is so called.—Ed. C. G.) A lady in this neighbourhood preserved all her *Verbenas* last winter, by covering the entire bed with earth, they shot up in the spring, and were this summer healthy, strong plants; they were principally the scarlet. I am trying the same plan this winter with a mixed bed of several kinds; also, I am leaving out *Cupheas*, *Heliotropes*, &c., merely covering them at night. Are the Scarlet *Lobelias* considered delicate? as here they are not thought so, and would soon overrun a garden, if left to themselves, they seem to increase so rapidly. The *Ecchremocarpus*, and *Lophospermum*, are left out unprotected about here, and commence blossoming in April. What Mr. Beaton has remarked, relative to *Scarlet Geraniums*, I have proved to be quite correct, as those I had not room to bring in, are in high health, and I shall let them take their chance out for the winter. (November 28th.) Last night there was a severe frost, the ground quite hard, but it has injured nothing in the garden. The *Fuchsia Cordifolia* appears exceedingly hardy, as although all the others have dropped their leaves, it still remains in full leaf and flower, and is therefore useful as a shrub."

Messrs. Weeks of Chelsea, say:—

"We have this day (Nov. 22), a beautiful flower on the *Victoria Regia*, and there is another bud which is on the

* There is such a tree even so midland as Tylehurst, near Reading, in an open cottage garden.—[Ed. C. G.]

point of expanding, in our open-heated pond. This is most remarkable at the present late period of the season, and causes great surprise and admiration in the gardening world."

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.



GREAT-FLOWERED HENBANE (*Hyoscyamus*, alias *Physoclaina grandiflora*).—*Botanical Magazine*, t. 4600.—Some years ago the late Mr. Don proposed to change the name of a pretty Siberian Henbane called *physaloides*, to that of *Physoclaina physaloides*, two words signifying the same thing—an enlarged calyx; from *physa*, a bladder, and *chlaina*, a cloak, or outward covering, on the one hand; and *physaloides*, bladder-like, on the other. To this he proposed to add *Hyoscyamus orientalis*, because its flower envelope, the calyx, is more inflated than is generally the case with the other species then described. These two species of Henbane were figured in the *Botanical Magazine* long before this alteration was thought of, and the grounds for it appearing to subsequent systematists to be but of slight value, they did not adopt it, and we had imagined that we heard the last of *Physoclaina*, except as an alias or synonyme to *Hyoscyamus*. On taking up the September number of the *Botanical Magazine*, however, we found *Physoclaina* still holding the position of an acknowledged or legitimate genus, and a beautiful species, the subject of our present portrait and biography, referred to it. It therefore remains for us but to record what is known of *Physoclaina grandiflora*.

It is a hardy herbaceous plant, with yellowish-green flowers, marked with thin purple veins. The stem is about two feet high, cylindrical, much branched, and, like the foliage, covered with down; leaves, alternate, pointed egg-shaped; flowers, in scattered bunches at the end of the branches; calyx, bell-shaped, five-toothed, but much enlarged and lengthened when fruiting; corolla, curved downwards, somewhat funnel-shaped; stamens, as long as corolla,

with egg-shaped, yellow anthers; *style*, longer than corolla, thickening gradually to the stigma.

It was found in the plains of Thibet, at 15,000 feet above the sea's level, by Lieutenant Strachey. It thrives in common garden soil, and is propagated by division of the root in autumn or early spring. It belongs to the Natural Order *Nightshades* (*Solanaceæ*), and to *5-Pentandria 1-Mono-gynia* of the Linnæan system.

B. J.

THE FRUIT-GARDEN.

THE EARLY VINERY.—The advent of Christmas is a reminder of the approach of another year's labours to the forcing gardener, and, as the Vine stands foremost in point of general culture and utility, we proceed to offer advice as to forcing principles; advice, be it understood, equally applicable to a house closed in February, as in December. Vines intended to be forced very early, that is to say, to produce ripe Grapes in May, will have been pruned some time since: if not, this indeed is the very first step.

Some caution will be necessary in this matter, for if the Vines have been forced early in the preceding year, they will be almost sure to bleed. Vine cultivators should make it a maxim at all times to prune their Vines in-doors or out, for whatever purpose, *the moment the last leaf has fallen*; indeed it may be done somewhat before. In the event of its having been neglected, the best way is to wait a few days for a frost, or for a very low temperature. With a thermometer at four or five degrees of frost the danger will be much diminished. The pruner, too, should have a lad, or some person, to follow with some thick white lead; a patch of this on the top of the wound will, if the wound be dry, effectually stop all bleeding. If the sap run at the moment of pruning, it is ten to one the object is defeated. Indeed it is well to paint the ends of Vines which have been pruned some time, especially if young and very strong ones; such very frequently commence bleeding upon the application of heat, particularly if too suddenly employed.

Stripping away the loose bark is practised by many good gardeners as a defensive measure, and should, by all means, be done, as it affords a much better chance of exterminating the insects and their eggs. It consists in removing every particle which is decayed; and inexperienced persons must take much care that they do not wound the *living* bark. This proceeding, like many others in horticulture, requires some caution. It must here be observed that the bark strips much better when moist, and, the evening before stripping, the Vine stems should be repeatedly syringed, and as much atmospheric moisture as possible sustained in the house all the night. The water used in syringing may be of a temperature of 120 degrees, and the syringe may be kept going during the stripping process. After removing the loose bark entirely the trees may immediately receive their annual dressing, a process of the utmost import, both with regard to the destruction of insect life at present, and the prevention of it during the spring and summer, as also as antagonistic to the Vine mildew, which has committed such fearful havoc of late. Previous to this, however, we advise a thorough "stoving" of the house with sulphur fumes, and it is almost needless to suggest, that if such a course be adopted, every plant, everything with a live leaf in such house must at the time be removed, for this "stoving" is certain death to all *active* vegetation.

It will be readily seen by our more experienced gardening friends, that the stoving here suggested is intended as a most searching ordeal, as to either insects or fungi, previous to the *wash* about to be recommended. Now sulphur requires a little management in its com-

bustion; it is a fitful thing. We do not pretend to know which is the very best way to manage this fumigation, but may simply state our practice, which is to blend a little sulphur with a good deal of fresh and dry sawdust, and after placing four or five bouncing red-hot coals in a vessel, to throw a pile of this sulphurous mixture over the coals, thus producing a smouldering mass for an hour or two. Every light must be closed during the operation, and the house inside, with the wood of the tree, should be perfectly dry.

And now the wood of the trees may be dressed all over with a mixture applied with a painter's brush, taking care to brush it into every crevice. Our practice, indeed, is to give a second coating; this ensures a complete dressing. Different mixtures are in use by different practitioners, but nearly all include a good amount of sulphur, and some use lime. Our practice is to beat up soft soap in warm water, at the rate of three ounces to a gallon; we then add about a pound of sulphur, and after mixing clay in water until a thick fine mud, we add as much of the latter as will make the whole into a thick paint. This fully answers the purpose, and although we cannot say that we never had the terrific mildew, yet this, and our practice of painting the hot water pipes with sulphur nearly every month, has not only kept it quite at bay, but, we believe, totally extirpated it. We have now (December 1st) as nice a house of the Black Hamburgh and West's St. Peters, as, perhaps, ever was seen at the period; these we shall be using until the middle of February. They are black as the sloe, the bloom perfect, and the flavour exceedingly fine. The house and the wood were subjected precisely to the processes here described, and no syringing has ever been resorted to.

Undoubtedly, a very free *ventilation* is, of all other things, of the utmost importance with very late grapes; and, as according to the old country adage, the "goose sauce answers for the gander," we really do not see why we may not infer that a free ventilation is necessary for early grapes as well as late ones. We hear so much about cold currents, &c., that it is to be feared what is termed by common people "a muggy atmosphere," is but too often the cause of some of the grape evils so often complained of.

The vines pruned, painted, and dressed, let us now enquire about the borders, the heating apparatus, &c. Painting, whitewashing, or, indeed, any sort of colouring, cannot be done too often; it is to be fairly presumed that every time a coating is applied to the walls, wood work, or other parts of the fabric, that myriads of insect beings, present or prospective, are destroyed; moreover, decency, yea decoration, is mixed up with the general economy. These things we all know are best done at an earlier period; but if not so, let us make the best of a bad bargain. Passing from this portion of the subject—first observing that the more of flowers of sulphur that *can* be blended with the washes or paints the better—next the border: and here we must confess to a misplacing of this division of the labours.

All good cultivators in these days are advocates for an artificial warmth imparted to the border if it is unluckily (for early grapes) *outside* the house. Now, fermenting material is generally resorted to of necessity, and, as has before been observed, tree-leaves and manure, mixed, make an excellent material, both as to warmth and manurial tendencies. We believe that experienced men will agree with us in saying that the application of these materials *two or three weeks* before the forcing commences, will be a benefit, as tending to prepare the root for a reciprocation of good offices with the branch, immediately the fluids in the latter shall be set in motion. Indeed, setting aside the idea of a high fermentative warmth in the material, good gardeners always take care to cover their borders attached to early

forcing varieties in October, on the well-known advice of locking the door before the steed is gone. When such has been done, it is simply requisite to apply a given quantum of fresh, hot manure to it, and to turn and mix the whole. Such a preparation, under such circumstances, may be considered highly beneficial, if not indispensable, at any period of vine forcing from November until March, and a temperature of 75° to 80° may very properly be sustained in the mass. Such a temperature may be considered too much at first sight, but when it is remembered that 80° in a superincumbent fermenting mass will not be "read off" at more than 60°, perhaps, at a foot deep—or, in other words, in that medium where the chief of the roots are situated—there will appear nothing very extraordinary in such proceedings. Let every vine forcer thus situated remember that the *natural average ground-heat*, in most parts of the globe, is usually some three to six degrees in advance of the atmospheric warmth; so that what gardeners term bottom-heat is only a carrying out the designs of nature, albeit some persons may extravagantly exceed the prescribed bounds in the attempt.

And now, whilst on the subject of *outside* borders, let us take into consideration the state of the border as to moisture, and see whether it is expedient that *all the rain and snow* that happens to descend may be permitted to enter the border, or whether, in the trite maxim that "an empty house is better than a bad tenant," it would not be well to intercept a portion and decoy it aside.

It is now some eighteen or twenty years since we attempted to draw attention to the propriety of acting on the defensive in Vine-border management (as to interceptive or preventive measures as connected with root moisture) in the then popular Magazine of the late talented and lamented Mr. Loudon. We very well remember strongly recommending a tarpauline covering to Vine borders. This idea was not altogether of a still-born nature, for the general character and mode of formation of Vine borders in Britain, shortly became a lively topic, and folks soon began to question the orthodoxy of the old six-feet-deep, alias wet-border men. And, indeed, a few years after the idea was pushed still further to test its utmost power, for Mr. Mearns, and some others, soon began to think of covering borders with glass. All these concomitant marks of progress had but one general tendency:—*more heat, less wet*. To apply this digression to the case in hand then, we say, by all means provide yourselves with a tarpauline, a felt cover, or any other Macintosh sort of material. This will almost pay for itself in due time, by saving the trouble of disturbing the fermenting material, in which process there is both a waste of labour and valuable stuff involved.

We may now suppose that the house is thoroughly purified, the flues, pipes, or other apparatus in high working order, and, indeed, all things ready for action.

The next thing to be thought of, is a steady and somewhat slow development of the buds. Many a time has the use of fermenting materials been suggested in the pages of THE COTTAGE GARDENER, and although the mere steam from water, however disposed, would, at first sight, appear to be all that is necessary, yet long experience of the ancient and time-honoured dung-bed of former days will, doubtless, warrant the confident avowal, that there exists a merit, a something in the steam from nicely fermented manure, which cannot be obtained from the pump. This is not intended to convey the idea that such is indispensable, that success can alone be based on this; it is merely urged that all experience proves its use to be of good practice. There is no occasion for it to be fermented previously; the fresher the better, provided no plants with living leaves are introduced to the house. When it becomes necessary to combine the forcing of vines, peaches, figs, cherries,

strawberries, or any other fruit, or even flowers, in tubs, boxes, or pots, why we can only observe that the dung must be fermented previously; and that a better medium or situation for all such during their *first stage*,—that is, until the fibres are in action, or the leaf developed a little,—cannot be found. Here are the very conditions present, which most of these things require, viz., a bottom-warmth some 10° in advance of the air-heat, and a steady and *certain* supply of air-moisture, impregnated, as before observed, with those invigorating gases which plants in general so much delight in.

It matters but little what situation in the house such material occupies, although the nearer the front the better; all the proprietor has to do, is to bear awhile with what some may consider a somewhat untidy appearance, although such may be much avoided by the *manner* of carrying it out. It is well known that, in the *breaking* of the Vine, dryness in the air is not only averse to what is termed regular breaking, but to a free and hearty development of the foliage, on which so much depends; and it would appear that a continuous and reasonable amount of air-moisture has ever been better sustained by the use of fermenting material than by any mode of applying mere water, which is but too apt to saturate or fall short, by fitful extremes.

Although not strictly belonging to the Vine-forcing commencement, yet it may here be observed, that much caution will be necessary in placing the pots, tubs, &c., on the heated mass. If the heat is worth notice, it will be too hot for plunging *full depth*. This part we dismiss by observing, that in general 65° to 70° is sufficient for the roots, and that the pots will very generally stand on the surface. Still, it is a good plan to form a hollow for them, but not to close the warm material in.

And now, having conducted the young vine-forcer up to the commencement of the excitement period, we may endeavour to give an idea of the *air-heat* necessary through the spring, first observing, that the heat here urged must be understood as independent of immediate sunshine. Let us assume six periods as follows:—

	Day.	Night.
1. Breaking period to the show of fruit	55°	50°
2. Show to the blossoming ...	63°	58°
3. Blossoming to conclusion of first swelling ...	70°	60°
4. Conclusion of first swelling to the conclusion of last swelling ...	72°	60°
5. Ripening period ...	65°	58°
6. Preserving period on the tree ...	55°	50°

It may be thought that the night temperature is fixed too low; we do not think so, being assured that much of the complaints about long-jointed wood, bad colouring, &c., &c., has been attributable to an unnatural amount of heat during darkness. The following we think a reasonable and proper advance during sunshine:—*Period 2*, 10°; *3*, 12°; *4*, 15°; *5*, 10°; *6*, 5°.

Ventilation about as follows:—*Period 1*, very little; *2*, rather liberal; *3*, cautiously; *4*, very liberal; *5*, abundant; *6*, abundant during day. R. ERRINGTON.

THE FLOWER-GARDEN.

BOURSALT ROSES.—This is a very small group, all climbers, and all suitable for weeping standards, but not well adapted for festoons. Crimson Boursault, or *Amadis*, is the best of them, and when in perfection in June is one of the finest dark Roses known. The next best is *Drummond's Thornless*, as it was first called, but now they have given it a Latin name—*Inermis*. It is a red-dish flower, and a good grower, and so is *Gracilis*, a pink Boursault, and the last of them that is worth growing; indeed, were it not for giving a little more colour to so many white ones of the same style of growth,

I would be content with one kind, the crimson. I tried to cross the Crimson Boursault in 1846, 47, and 48, a few flowers each year, but I did not get a single seed. The season was too hot in 1846, and the blossoms dropped prematurely; but under more favourable circumstances I failed also, and I do not recollect having ever seen ripe seeds on it; still I must not give a decided opinion on it, as a breeder, from so slight an acquaintance. Can any kind reader help me from his own experience? We have not another Rose from which it would be more desirable to obtain cross seedlings. I am almost sure that it ought to be pruned before hard frost sets in, when it is grown in good rich soil, because it keeps on growing very late, and the unripe wood is so soft that it seldom escapes from injury by frost. It is not a very good one to bud others on, from this liability to get frost-bitten. It is the only Boursault worth a south wall.

AYRSHIRE ROSES.—Out of a full collection of these, planted on a very indifferent soil thirteen years next spring, *Rose Angle* is now the best and healthiest of them; *Ruga* is much stronger in the old wood than *Angle*, but the young wood is not so healthy, nor does it bloom so well. *Splendens* and *Bennet's Seedling* are the best bloomers. There have been a great number of seedlings raised from this section by different growers, but they were too much alike, and too close to their parent stock, to make a distinct show; and, like the Scarlet Geraniums, one may meet with a seedling climbing Rose, which is much praised in one place, and much condemned in the next place you call at. The *Ayrshire Queen* is the best coloured and most distinct Rose in this group; it is a dark purple or crimson Rose, and makes a very beautiful standard with its long slender branches hanging down on all sides; it is also well suited for festooning, and would give a good relief to a collection of the light-coloured evergreen Roses, besides agreeing with them in habit. I never attempted to get cross seedlings from this rose; but it is one of great promise, and we want more variety of colours in all the sections of climbing Roses. Out of many seedlings which grow much after the manner of the Ayrshires, *Madame d'Arbly*, nearly a pure white, and *Sir John Sebright*, a red flower, are the two best and most distinct; they may also be used in festoons, or worked for weeping standards.

This finishes my list of very hardy climbing Roses. The whole of them will grow on any soil, however poor, and they would flourish on heavy wet clay, where other Roses could hardly exist. Their habit is so wild and briar-like, that they would soon stamp the character of any rough piece of ground which one wished to devote to the growth of such plants as are not fit to be admitted into the regular shrubbery borders of the present day. For the sake of distinction, we gardeners call such places *The Wilderness*, and in large places the wilderness comes in very useful by way of contrast to the more dressed parts, besides the opportunity it affords us to prove seedlings of hardy plants from different parts of the world, which do not appear to be worthy of more special treatment. Nothing comes amiss for "*The Wilderness*;" it is the true situation for all the Scotch Roses, for the yellow Persian and Austrian Roses, and for the Sweet-briars.

The *Musk Roses* should also be planted in the wilderness. They say Musk Roses smell of Musk, but I could never prove that; they blossom in the autumn, however, and keep green to Christmas or longer, and on that account are as useful as any of the Ayrshires. The old white single Musk Rose never fails to blossom in very large clusters in the autumn, but one seldom sees it now-a-days; yet it would be worth while to try experiments with it and some of the *Noisettes*, with which it is nearly akin, and also with *Sir John Sebright* and the

Ayrshire Queen, to see if we could get more varieties of these sorts to bloom in the autumn, if only for the wilderness.

We shall never be able to excel the French growers in raising the finer description of Roses, but our hardy climbers are still within our reach, and our climate seems more favourable for experiments among them than that of the continent, and it seems now a settled question, that climate has much to do in ruling the experiments of the cross-breeder, as Dr. Herbert asserted long since from his own experience in rearing seedling bulbs, more particularly those from the *Gladioli*. When he failed to produce a scarlet-flowering seedling of *Gladiolus* by the pollen of a variety, removed two degrees from the original species, the species itself not being scarlet, but the variety nearly so, he accounted for his failure on one of two causes—either "the disposition of the perianth (the flower) to follow preferably the type of the male," or the influence "of our climate to produce the less-brilliantly coloured varieties of plants which are derived from warmer latitudes." The first of these surmises seems to be perfectly proved in the instance of the florist's pelargoniums. All their industry and ingenuity in crossing varieties have, hitherto, failed them to produce a true scarlet seedling, because, as it would appear, the varieties they work with have not come down from a scarlet type. The dark blotches in the upper petals of nine-tenths of their seedlings, were brought in by *Reniforme*, and although it might seem a triumph to have got rid of these blotches or dark spots, as in *Rising-sun* and *Sun-rise*, &c., they are still groping in the dark for a scarlet in that strain, and before they shall ever obtain it they must go back forty or fifty years, and begin afresh with *Fulgidum* and *Sanguineum*; but before they will succeed in producing this race, with flowers as large as those of their present *magnum bonum*, we shall have hybrid perpetual evergreen climbing Roses, with flowers as large as *Barron Prevost*, and may be as high-coloured as *Geant des Batailles* itself, if there is any truth in the second assertion respecting the suitability of our climate, though that is not favourable to the production of high colours among plants from a warmer climate; it may be otherwise with *Ayrshires* and *Dundas Ramblers*, whose types are indigenous to high northern climes. The *Ayrshire Queen* and *Sir John Sebright* originated, I believe, with Mr. Rivers. If he could thus manage, with the air all round his nursery grounds loaded with mixed pollen, what might a private amateur not expect if he were to go earnestly to cross our best climbing Roses, or, if he were not ambitious about high colours, let him take courage from *Madame d'Arbly*, the finest and most luxuriant seedling yet reared among the White varieties. There were some heart-burnings about the origin of this fine climber, and not without abundant reasons, seeing that it was passed off as a French seedling, and saddled with a French name, although raised by a worthy friend of mine, Mr. Wells, lately of Red Leaf, in Kent, and as good a Rose grower as any Frenchman that ever lived.

Another way by which all these hardy climbers would look exceedingly well is, to have them planted against single trees, or against trees in front of a group, or in front of a plantation, or indeed against any trees that were not too much in the shade, for no Roses like to be altogether in the shade; then to train or tie them to the stems, and let them ramble all over the branches, without giving them the least pruning. I have seen some of them tried this way and they looked just like wildings, and, if possible, more beautiful than in festoons. Sometimes they would make shoots from ten to fifteen feet long in one season, and hang down perpendicularly, like so many strings, and next year these would be covered with flowers from top to bottom, and after that we used to carry them across

the main boughs of the tree, giving them a tie here and there; and after a season or two, these would send out a second crop of weeping shoots to go through the same process, till, at last, the whole tree or trees were completely covered with them, and after that, we took no more heed of them. Now, although we know very well that these roses will grow in almost any soil, it is not very good policy to begin growing them without some preparation when the soil happens to be very poor or very stony, or a stiff clay, because a great deal of time is lost before they acquire sufficient strength to enable them to overcome all difficulties. A good wide hole, a foot or more deep, and two feet across, should be made and filled with better soil for each of them, or they might be planted two and two in such a hole; the plants should also be stronger than for better places, they should be two or three years old, at least; but very old plants, that one wished to remove to get rid of them from some better place, should never be used for this rough way of planting, because, having been once accustomed to good feeding, and having grown luxuriantly in consequence, the change to a hard, scanty food would tell against them very much indeed. For the first two or three years after planting, the ground should be kept clear of weeds, and the plants should be cut down to the ground, at least the two first seasons. Indeed, all climbers, as well as climbing roses, which do not take to the soil freely and grow away luxuriantly the second season after planting, ought to be cut close down to the ground, and that early in October.

I have often said how suitable the evergreen climbing roses were for budding other sorts on, but it is very different with the Ayrshire breeds; I have over and over again tried every one of them with other sorts, in great variety, but I did not succeed in establishing on them any, except two sorts, the *Old White China* and the *Fulgoré*, except it were on suckers, and these budded very low, near the ground; and, I believe, if it were desired, that all the free-growing hybrid perpetuals could be established on suckers of the Ayrshires. The *Fulgoré*, however, will flourish for years on any part of an Ayrshire rose, better than on any other stock whatever; it soon dies or gets out of order on the Dog-rose, and on that account the nurserymen have discontinued to grow it, although it is the latest and the most sweet rose we have. I do not see any advantage in growing the *Old White China* on any of them, unless it be that it flowers in the autumn; but sooner than let *Fulgoré* go out of cultivation, I would plant *Bennet's Seedling* on purpose to bud it with this delicious old rose, which is always more sweet the later in the season it blows. I once had it ten days before Christmas, and it was so sweet, that I might pass it off for a *Cabbage rose*, which it much resembles, and I should be very glad to hear that THE COTTAGE GARDENER was the means of saving it to the country. Many of the hybrid perpetuals are sweeter in October and November than at any other time, but there are none of them so sweet as *Fulgoré*, and none of them opens its flowers so late as it, except *Madame Laffay*.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

CAPE HEATHS.—These are almost universal favourites, being loved alike by the lady more conversant with her boudoir than the rugged steep or the tangled glen, and the chieftain who draws deep the morning air as he plants his sturdy footstep on his native moor. It is quite natural that something of the romantic should steal over the minds of the most indifferent, matter-of-fact sort of people, when, for the first time, they behold a heather-clad mountain, decked in all its beauty, and

diffusing its perfume. No wonder, then, that the keen lover of flowers should revert almost instinctively from such a lovely scene in our own land, to contemplate, in his mind's eye, the still more beautiful prospect that *must* adorn the mountains of Southern Africa. Seldom satisfied long with the present, we soon, if it is even in fancy, make it the stepping-stone and starting-point for future enjoyment. Who, when wrapt in such visions, would ever dream of the intrusion of the subtle Caffre, and his long-barrelled musket, or the treachery of trusted Hottentots? And yet, without any such nightmares upon the imagination, I have been often informed that those who admired heaths as grown by our gardeners here, would be greatly disappointed, in a floral point of view, if they could roam unobstructed through the length and breadth of Cape Colony; so stunted and small would many of our favourite species appear, when contrasted with those adorning exhibition tables at home, that it would require practised eyes to discover their identity. There, at times, just as on the mountains of Scotland, a striking effect is produced, not by the beauty and symmetry of the individual plant, the great aim of cultivation, but by nature bringing them into masses—in the result, as a whole, individualities are lost. To such scenes we are, no doubt, indebted for the first ideas of grouping in our flower-gardens; a style which, though it shows little of individual cultural excellence, is, nevertheless, not only fashionable but pleasing, its agreeable merits consisting in the strong contrast between the natural and the artistic, a fact which presents no mean argument for attending to this law of contrasts in the arrangements of floral beauty. Be this as it may, no doubt can exist that Cape Heaths are great favourites with the public, and with our readers generally, as is evidenced by the many inquiries made, and the short answers given. But why has the subject not been treated more in detail, so as to give longer answers to these queries, and thus prevent their frequent recurrence? I speak not for my coadjutors, but merely for myself:—1st. For some years my practice has been more confined to making experiments with heaths than in growing a collection, and though I had many notes of practice and observation, taken when somewhat younger, I felt that the men who had the greatest quantity under their care at the present would be the fittest to write about them. As, however, the matter cannot be avoided, I shall trust to such men to keep me right if in anything my practice should run counter to theirs. 2nd. Those with large places, and possessing a regular house for heaths, I could not expect to benefit, and not a few of these are subscribers to this little Journal. The 3rd, and chief reason, was the dread of enticing great numbers to enter upon a field which would be most likely to lead to disappointment. It was quite evident that great part of the enquiries proceeded from those who had minds expanded enough to try their hands upon every kind of plant, but whose whole resources consisted in one house, not large, and, therefore, of a little-of-everything character. Now, we frankly admit that in such a house, with increased attention and thought, much may be done, and how it is to be done we have not been slow to state; but unless in the case of a few of the more robust, hardier heaths, lists of which have frequently been given, no class of plants could feel less at home than they. For instance, keep a cool, dry, airy atmosphere about your heaths in winter and spring, and the most of your flowering plants will refuse to open their blooms freely or to look healthy; on the other hand, keep your house warm enough and moist enough to give you healthy plants and plenty of bloom of cinerarias, &c., and the same closish air will cover your heaths with mildew, the adjoining step to the rubbish heap. Much may be done by keeping heaths, and other hard-wooded plants, at one end of the

house; but even then, if there is no division, the neglect of opening the sashes for a few hours, at times, will be of great injury to the heaths, as nothing is so prejudicial to them as a confined atmosphere, and at all high in temperature. When one house, therefore, has to be kept gay at all times, and there are not proper places in which to keep heaths, when growing and after blooming, gardeners, willing or unwilling, are forced to admit them sparingly. Hence, I have previously recommended amateurs, in such circumstances, to bestow their attention upon the *Epacris* tribe rather than on heaths, as they will bear and thrive under similar treatment, as respects atmosphere and heat, that suits the generality of free-growing, free-flowering plants usually grown in such houses, while one thing in their favour is, that they will mostly all bloom freely in winter and spring. In several respects the treatment required for them, as previously given, especially so far as propagation and soil are concerned, is similar to that required by heaths. With these preliminary hints in the way of caution, I shall give an outline of the treatment that heaths require, leaving it to our friends to possess such beauties or not, being well aware that many minds are so constituted as never to feel so much pleasure as in grappling with and surmounting the difficult.

1. As respects *Propagation*.—This is effected, first, by seeds, for increasing the species and securing hybrids; some of the very best in cultivation have been so obtained. Secondly, by cuttings, for increasing the species or particular variety.

Seeds.—The most of the species from the Cape Colony were thus at first introduced, and, as remarked above, our best hybrids have thus been raised at home. There is something very pleasing in cultivating the plants, seeds of which have been sown by ourselves. Many of our readers may have friends at the Cape, or possessed of heatheries at home, from whence seeds might be obtained. Home-raised ones would be preferable, unless gathered at the Cape by an experienced hand. In sowing there are several circumstances to be attended to.

Time of Sowing.—All things considered, I prefer the end of February, or the beginning of March, as, if the seeds germinate freely, there will be time for the plants to be pricked out or inserted in small pots, and somewhat taken with the soil before winter. The fresher the seeds are, if well-ripened, and kept free from damp, the quicker in general will they germinate. I do not know how long the seeds will keep, but have seen them grow pretty freely after being three years gathered. If one time is better than another for sowing, therefore, there will be little danger of the seeds keeping. The seeds of some kinds lie much longer in the ground than others; some not coming up within a twelve-month; and, in their case, sowing in summer and autumn would be desirable, as the plants would then appear at the best time of the season. Even in the case of free-germinating kinds, I have seen seeds saved from the same plant and sown in February germinating in July, others making their appearance in September, and others, again, appearing in the spring following, all in the same seed-pan. Whilst, therefore, indicating what we consider to be the best time, we would not greatly object to any period. The rule to be drawn from what we have said, is to wait patiently after sowing, and not in dudgeon to cast the seed-pans on the rubbish-heap, because the plants refuse to come in two or three months.

2. *Vessels and Materials in which to Sow, and Mode of Sowing*.—These are simple matters, but not wanting in importance. Shallow wide pans are generally recommended, from three to four inches deep, and half filled with drainage. However useful and suitable these may be for nurserymen, I do not consider them the best for private gardeners and amateurs. It is rarely they want to fill a pan with one kind, and they

germinate so unequally that if many kinds were sown in one pan some would require pricking-off before the others germinate. I prefer, on this account, to sow each sort in a pot large or small, according to the quantity of seeds. Besides, I prefer pots to pans just because they are deeper. It is an easy matter so to fill these pots with common drainage, moss, charcoal, &c., as to reach as near the top as you would desire in the shallowest pans before putting on the surface-soil. The advantage of the deeper space beneath is, that the materials there better insure an equilibrium of moisture in the soil above,—a matter of first-rate importance here. In choosing pots, I prefer soft-burned ones, just because I rather wish their sides to possess a sponge-like quality; though, for general purposes, I pass them by. The first thing to be done, is to place something over the hole in the bottom of the pot, so that a worm shall be unable to enter; over this coarse potsherds, mixed with some charcoal as drainage, and a small quantity of half-decayed moss, until you reach within two inches of the top of the pot, the drainage becoming finer as you ascend, until it is little larger than peas. Over this place a slight layer of half-decayed moss, and then fully half-an-inch of rough, fibry, sandy peat; over this a layer finer, and then another finely sifted, consisting of equal parts peat and sand, and a small proportion of charcoal bruised as fine. Press the surface even, and then water freely, or, better still, set the pots upright in a tub of rain-water, the water rising over their tops. When thus thoroughly wetted, set them out to drain; and when the surface again becomes dryish, after levelling it with a round piece of board, sow the seeds regularly over the surface, and somewhat thickish, taking care previously that the soil is from one-quarter to one-eighth-of-an-inch below the level of the top of the pot. Press them down slightly into the soil with the above-mentioned board, and scatter the slightest portion of sandy peat over them, better none than too much, and just *dew* them again with a little water, place a glass over the pot, and cover that with a paper to prevent evaporation of moisture, and to prevent the surface being dried with the sun. Watering must be given with great care, and here the pots are found superior to the pans, for if plunged in ashes, or moss that has been previously soaked in boiling water to destroy all insects, the watering of that material will prevent the necessity of much watering at the surface. After sowing the best place is a close cool frame or pit, where the temperature will seldom be below 40° in winter, and which will be protected from the fierceness of the summer sun. During that period, if the lights face the north it will be all the better. Of course, in a small way, all this may be managed by means of a handlight in the smallest greenhouse. The great thing is to prevent the surface-soil from ever being what might be termed *wet* or *dry*, and the mode recommended is about the best for these and other small seeds that require a considerable time to germinate.

3. *After Treatment*.—As soon as the plants appear, more air and light must be given them by degrees, shading only in bright sunshine. When from one-half to one inch in height, they must be pricked out round the sides of small pots. If in winter, a little dusty charcoal may be blown in among them, and the plants allowed to stand until spring. Before pricking off they will want watering several times, and this is best done with a small-spouted pot; the water being poured on a piece of glass, or anything of that sort, so that it covers the surface of the pot regularly without *holing* it. I prefer pricking them round the sides of small-sized pots, instead of pans, or into the smallest thumb pots, for reasons previously given. In winter they must be kept near the glass, and in a uniform state as respects moisture. This will be facilitated if the pots are again

plunged. Plenty of air must be given, and the night temperature should seldom be below 40° in winter. In the following season they may be potted separately in fine fibry sandy peat, and kept close until fresh growth has taken place, and then be gradually exposed to light and air. I forgot to say that this must be *particularly* attended to in first pricking off. Fine sandy fibry peat must be used on both occasions; afterwards the usual routine will suit them. R. FISH.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS.

A NEW *Epiphyllum* was exhibited at the Horticultural Society's meeting, of rather an improved character from *E. Russellianus* and *E. roseus*, both being of the *Truncatus* species, or family. It differs from the latter in an essential character, though not in colour. The petals, instead of being close-hugging and irregular, form two or three complete flowers growing one out of the other, and it is in that a great improvement on the *E. truncatus* family, numerous as are the varieties from seed. We have had from different nurseries *E. Russellianus*, *E. violaceu*, *E. roseus*, and others, all of the habit of *truncatus*, and as every one who grows them will remember there is no shape to the soft and flabby blooms, but merely two or three tiers of petals round a soft elongated centre, it may be presumed, therefore, that, pretty as all these things look as a whole, when in full bloom, it is a decided improvement to have a regularly built series of flowers with their petals equally expanded all round. No name was given to it, but as a medal was awarded, we shall hear of it again. There was a part of the green leaf cut with every flower, so that whoever gets these would have a stock as soon as the owner. A collection of *Epaerises*, from the Society's garden, exhibited no peculiarity except being wrongly named, and, for the most part, being old and discarded acquaintances.

Penstemon variabilis, a new and excellent variety, raised at the Versailles Nursery, and expected out last spring, was withheld, because some of the spring blooms were rosy instead of cream-colour, edged with rose and veined with blood-colour. The owner having now satisfied himself, will, of course, execute his orders, but he ought not to have been in doubt a moment; for a plant which is essentially an autumnal bloomer will not come in proper character in spring any more than an *Auricula*, which is a spring flower, will come right in autumn. Nevertheless, if every nurseryman would be as particular, we should not have so many worthless things let out. *Penstemon variabilis* is the most remarkable, and the prettiest of the family.

CHRYSANTHEMUMS (S).—New, *Yellow-fringe*; a brilliant yellow, large size, tolerably full, and every petal divided into four or five points at the end, like a hand. It will be very striking as a plant, and is well-named. *Versailles Defiance*, after the model of *Annie Salter*, but purple. *Conspicua*, a large, extraordinary flower, flat on the face, but perfect to the centre, and of splendid habit in the plant; a rich purple in colour. *Delicate*, a pretty flower, and desirable as a novelty, though not to be compared with *Queen of England*, which, in our estimation, stands among the best half-dozen. The other blooms not in condition to pronounce an opinion on. The *Pomponé Chrysanthemums* make a very pretty show when put up in bunches like small roses; and they are becoming favourites, because they take so much less room than the others. There was a collection at Regent-street, which looked very striking, and took the attention of the meeting a good deal. [We are promised an essay on their culture by Mr. Beaton. Ed. C. G.]

A question has been put concerning *The National*

Floricultural Society, which does not quite touch the material point, because nobody will admit comparisons in judging seedlings, except with old flowers. If forty seedlings were presented, say of *Pelargoniums*, and one had a great preference over the other thirty-nine, the judges would have no right, in justice to the public, to look a bit more favourably on that than on the rest, if it did not possess merit enough to warrant its coming out; and to warrant this upon the authority of collective wisdom, it must be better in form or substance than anything we already possess of its colour, or it must be as good, and a new colour. Anything short of this should be left to individual recommendation, and not be stamped with an artificial value by public censors. That better things have been passed over than some which have been favourably noticed, we are prepared at any time to prove, but the fact will prove itself.

FLORISTS' FLOWERS CULTURE.

THE PINK.—GENERAL MANAGEMENT.—(Continued from page 152.)

The Blooming Season.—Every attention having been bestowed upon the plants, they will, by the time the flower-stems begin to spring forth, be in good health, and strong in grass—grass is the term florists use for the leaves and shoots before the flower-stems appear. A good criterion to go by, in judging upon the health of any plant, is not only the size and quantity of foliage, but its colour. The leaves of most kinds of the Pink are of a light-green—a greyish-green would be, perhaps, a more expressive description. If they are of different shades, some parts light-green, and others approaching to white, the plant is not right; or if there are spots of a lighter colour on the leaf or leaves, though the plant may appear strong, it certainly is diseased. No time must be lost in trying to recover such plants. It may arise from a too rich and light soil, in connection with a wet dark spring. Should that be judged to be the case, remove the soil from around each sickly plant, and replace it with some sound, sweet, light loam, twelve months old, pressing it down lightly to the root. As soon as the new fibres begin to feed upon this fresh earth, a visible improvement in the colour of the leaves will take place, which may be still further improved by an occasional watering with very weak guano-water, but this must be applied very cautiously, or the remedy would be worse than the disease.

Insects.—As the warm days of summer approach, these vermin will begin to appear, and if not immediately checked, they will multiply amazingly, and soon render the plants sickly. The insects or vermin that infest the Pink, are the *aphides*, or green fly, the common slug, and the wireworm. The green fly may be effectually destroyed by smoking with tobacco. Apply it in the following manner:—Invert a tight hand-light over the plant. Fill a common tobacco-pipe with common shag tobacco, light it, and blow a sufficient quantity of smoke under the hand-light to fill it, close it down immediately, and leave it all night. In the morning the insects will be all dead—wash them off with a syringe or watering-pot, and the plants will be relieved from the pest. If the insects are not very numerous, a little Scotch snuff dusted over them will destroy them. When the flower-buds appear, if any insects are observed on them, they may be destroyed by bending the stems carefully down into a vessel containing tobacco-water, allowing the infected buds to remain a few seconds immersed in the destructive liquor. Some florists syringe the plants with the tobacco-water, but this is a wasteful process, which may be avoided by dipping the flower-buds in the tobacco-water. Whichever method of destroying these pests is adopted,

let it be done as soon as any of the fly is visible on the plants, or they will increase, and, by sucking out the juices of the plant, cause the leaves to curl up, become diseased, and, finally, either destroy the plants or cause the flowers to bloom distorted in shape and deficient in colour, thus disappointing the hopes, and rendering useless all the previous cares of propagation and culture.

The next enemy to contend with is the common garden slug. Where this pest abounds in great numbers the most effectual destructive agent is lime-water; this is made by pouring clean water upon quick-lime—a peck of quick-lime will make six gallons of lime-water. The best way to make it is to procure a tub, or a vessel made of any other material, sufficiently large to contain it; this tub or vessel should have a tap inserted in the side, about six inches above the bottom, or high enough to be above the lime when it is settled to the bottom. Put in the lime, pour on the water, and stir it well up till the water has taken up as much lime as it will absorb; then let it settle till it is quite clear, which it will soon become, excepting a thin scum on the surface; then pull out the tap and draw off the clear water, and water the bed with it: do this in the evening of a dry day, and again in the morning. This application will generally be found sufficient, unless there are in the neighbourhood lurking places, such as edgings of box or thrift, and beds of vegetables thickly grown; where such is the case, a narrow train of quick-lime, in powder, should be laid all round the pink-bed, to protect the plants, by preventing the slugs from creeping over out of their ambush. Traps may be laid for them where they are not very numerous; these traps are cabbage or lettuce leaves, or even brewer's grains; these traps must be examined every morning, and the snails picked up and destroyed.

The last of this sad catalogue of enemies to contend with is the wireworm, happily not so prevalent or so prolific as either of the others, but where it does abound it is most destructive, and the worst is that it is a concealed enemy, and cannot be perceived till it has completely destroyed the plants attacked by it, eating out the pith and marrow only, and thus keeping the plant alive till the last bit of its delicate food is consumed; then the plant, looking so green and fresh, droops its head and dies a sudden death. This concealed enemy can be destroyed only by presenting to it food more palatable, or, at least, more easily come at, than the marrow of the pink. This food is thick slices of potatoes, or Swedish turnips, buried slightly in the soil near the plants, and taken up every two or three days; the wireworm will be found with its head buried in the slices, and is then easily caught and destroyed. A good, useful protection from the wireworm, is to plant a few Coss lettuce plants amongst the pinks; the Coss food are more attractive to the wireworm, and consequently, in a great measure, the pinks escape its destructive ravages.

T. APPLEYBY.

To be continued.

NOTES TAKEN DURING A JOURNEY IN AUGUST, 1851.

INSTEAD of our usual paper on Exotic Stove Plants, we shall this week give a brief account of some things noted in the gardens at *Trentham*, belonging to His Grace the Duke of Sutherland, which, we think, will be interesting, and, perhaps, useful to some of our readers.

In the first place we would observe, that the gardens generally are in the highest order of keeping, both in the houses, whether devoted to fruits or plants, and the various objects cultivated in the open air. It is not our intention to enter into a minute description of every department of gardening, so well cultivated and carried out there under the well-known skill of Mr. Fleming,

the talented manager of these most extensive gardens, because to do that would be sufficient almost to fill a volume; but we will glance at a few things that appeared to us either new, or peculiarly excellent, and worthy of imitation.

Standard Pear-tree Training.—The method practised with these is to train them, first up with a single stem, to the height of six or seven feet, and then to stop them, and as the shoots grow, to train them downwards in the shape of an opened umbrella. This method appeared to check the strong growth, and cause them to be more fruitful, besides being more easily come at to prune in the autumn, and gather the fruit when ripe. In the centre of one of the fruit gardens there is a long walk, trellised on each side, and arched over. This is covered with pears, and when we were there they had on them an abundant crop of fine fruit. The blossoms had been protected from the late spring frosts by an awning of canvass supported from off the trees by long rods and iron arches about six inches above them. This is an elegant and sure way of growing the pear, and the better kind of apples.

Grafting Pears.—The pears against the walls here have grafts put upon the long branches with the best effect. Instead of ugly spurs, producing a quantity of breast-wood, or, as the old school termed them, fore-rights, the long branches are grafted generally with the same variety, at two feet apart on the upper side of the branches, and then grow; they are nailed close to the wall. The trees by this method are furnished with bearing well-ripened wood quite to the centre of each tree.

The Apple-trees in these gardens are planted in quarter quincunx-fashion, and trained in the goblet shape; they are root-pruned, and were very fruitful.

The gardens at *Trentham* are rather low in situation, upon a clay subsoil, and consequently cherries did not formerly grow well, nor did they fruit satisfactorily, especially that useful variety the *Morello*. In fact, the growing of this kind against the north walls was almost given up in despair, and Mr. Fleming found them in a wretched state. Judging that this was owing to the roots being too wet, he had the old soil removed, and a foot deep of broken stones, brick-rubble, &c., put in the border; upon this he placed six inches only of good rich soil, in which he planted young healthy trees some eight or nine years ago. The result exceeded his most sanguine expectations. The trees grew luxuriantly,—in two or three years bore some fine fruit, and have continued healthy up to this day. When we saw them they were really the finest trees we ever saw. This is a lesson in cherry-growing worthy of being studied and imitated.

The Gooseberry.—This useful fruit is cultivated at *Trentham* in a novel way. Two rows of rails are set up about four feet high, and nine inches apart; the bushes are planted between them, and trained within them. In this way they are easily covered with mats to protect them from the birds, and preserve the fruit to a late period. The method has the advantage of a very neat and orderly appearance.

The Currant.—Red and White varieties are grown here as standards to a large extent. They are trained up with a single stem about three feet high, then stopped, and allowed to form bushy heads. Elevated in this manner, the fruit ripens much better, is of a finer flavour, and each bush can be effectually protected from birds by netting, or may be preserved to a late period by matting more effectually than in the usual low-bush system.

Fruit-Houses.—The most striking object in this department was a house of *Queen Pine-apples*, just swelled ready for ripening. The house was nine lights long, and on a very low computation it would yield 300lbs.

weight of pine-apples. Several would weigh 7½ lbs. each, and none would weigh less than 4½ lbs. [Since our notes were taken Mr. F. has exhibited four or five of the best at Regent Street, and we are happy to observe that they quite came up to the point of weight we calculated them at]. This is, indeed, a triumph in *Queen Pine-apple* growing. The plants had been first grown in pots, and when they had reached their full size for fruiting, they were planted out in loamy, rich soil, in the pit, upon a heated bed. This method combines the old plan of growing the plants in pots, and the plan of planting them out, first originated, we believe, by Mr. Hamilton, of Stockport. From Mr. Fleming's great success, it may be fairly granted that this is the best mode of growing them.

Grapes.—These were very excellent, but, perhaps, not more so than might be seen at other places. Two varieties were pointed out as being very superior. The one named *Charlesworth's Tokay* is superior to the highly-esteemed *Muscat of Alexandria* in hanging very long upon the tree in perfect preservation. The other was named the *Dutch Hamburgh*, much superior to the common Hamburgh, being better flavoured, and thinner skinned, and also larger berried. Both are truly desirable.

T. APPLEBY.

(To be continued.)

THE KITCHEN-GARDEN.

SAVOYS.—This useful vegetable, which at this season, and afterwards, is much in demand, may be kept in a good useful condition by adopting a very old-fashioned plan, which we remember in our young days seeing used rather extensively with Scotch Cabbage; it is simply pulling the plants up and burying them in the earth the reverse way they were before, the roots sticking upwards. It is surprising how long they will keep in that way. That onward progress which nature has destined for all, first to maturity, and then to decay, is, to a certain extent, retarded after the first of these positions has been attained, and that tendency which the plant has to burst asunder those beautiful and intricate folds, of which the "head" is composed, is completely checked by our process, and though a few of the outer leaves may suffer from its altered position, yet nothing like to the extent they would have done if left exposed to the vicissitudes of freezing and thawing. The best medium we ever had for keeping them was a heap of peat earth that lay in a dry sheltered corner of the compost yard; but they will keep several days, and we might say weeks, hung up in a cellar, or similar cool place: at all events we strongly advise the young gardener to preserve a few in some of these ways. It is generally admitted

that frost improves Savoys, while it is also too well known that a very severe season destroys them entirely, but a mild winter is equally against their keeping in good order for any length of time. Their growth, or progress, not being stopped, they burst so much the sooner, so that some of the contrivances mentioned above are more necessary in a mild season than in a severe one. We may add, that the *Red Cabbage* may be kept in a similar way with perfect success.

ASPARAGUS.—Where a regular supply of this vegetable is wanted from Christmas up to the time it comes in naturally, a succession of roots must be provided, proportionate to the demand, and, as the season advances, it comes into use with a proportionate less amount of forcing heat, or, in other words, the amount of heat and of time required to furnish a supply of useful heads in November, is at least double that which is necessary in March to accomplish the same object; this may be easily accounted for. A period of rest seems necessary for the well-being of all vegetation, and when we disturb that rest by such artificial means as those we adopt in forcing, we must expect offended nature to withhold some part of her assistance; the result is, our Asparagus is not so large in December as it would have been in May, if left undisturbed. Neither is it so large as if left to force by more gentle means, so as to come into use in March, our skill is, therefore, called into action to remedy this defect as well as we can, and watering with tepid liquid manure is resorted to with a fair share of success. Still we must not expect to have such fine heads at this early period as at a later one. A fresh batch of roots may now be put in motion, and whatever mode of heating may be adopted, let it, if possible, only commence by degrees with this vegetable, and do not, by any means, allow too much bottom heat at first. Top or atmospheric heat is of less consequence, it being so much modified before it reaches the root. About once every three weeks a fresh supply of roots will have to be put in, and afterwards, where its progress is more rapid, once a fortnight will not be too often. We place the roots on good garden soil, and cover with sifted leaf-mould, in which some salt has been mixed to expel slugs, worms, and other pests.

SUNDRIES.—We have little to add to our previous recommendations of *storing away*, and covering up such vegetables as the severity of the season renders necessary. Hoop over beds of *Lettuces*, and on frosty nights cover them with a mat. The same may be done with young *Cauliflower* plants not protected in any other way. Give pans of *Mint*, *Tarragon*, *Parsley*, &c., that have been placed in some warm corner, occasional waterings with liquid manure, and place a few of the earliest kind of *Potato* in some warm medium to prepare it for planting in a frame, and attend to *Sea-kale*, *Rhubarb*, &c., as directed in former Calendars. J. R.

MISCELLANEOUS INFORMATION.

PLANTING POTATOES ON HEAVY SOIL.

Not having seen in the pages of THE COTTAGE GARDENER anything about planting potatoes in cinder-ashes in the autumn, I will now give you my method of doing so, and will begin with the sets of the sorts you wish to put to this test. Spread the potatoes on some kind of floor, as this keeps them from fermenting, and in the first week in October look them over, and should any of them need cutting that is the time to do so,—spread them afterwards thinly on the floor—I mean the cut sets; though the whole should be kept as thin as you can, and all of them on a dry floor until planted. Some time towards the latter end of November, look out a piece of ground, not under the drip of trees, and if 'owards the south so much the better; line

it out the length you want, and three feet-and-a-half wide; cut out the alleys, and spread the earth level over the surface of the bed with the back of the spade; on this smoothed surface lay one inch-and-a-half of cinder-ashes, and upon the cinder-ashes place your sets. If you have any cut sets place them on first, that they may be planted by themselves, but do not let them touch each other, as they will emit roots before some of them are finally planted. Then begin with the whole sets of the same sort, and then any other sort, until all are placed. Over these sets strew two inches in depth of cinder-ashes, making it all level, and get some old thatch or light litter ready to cover them over in case of frost. Lay it thickly all over the bed and alleys too; this will

keep them safe and sound, and when they do break they will be sturdy little chaps; and any time in February, or sooner, fetch them out for planting in frames, or raised beds, or for the common quarters when the ground will *work well*. This I have found to be the best plan with planting potatoes on heavy soils that I am acquainted with, as it gives an opportunity of doing more to the ground than you otherwise could do, and the potatoes are going on at the same time.

About 1844, or 1845, there was a great deal of noise about autumn-planting of potatoes; I was then at Danbury Park, John Rounds, Esq., M.P., and having a south border eighteen feet wide, and of considerable length, on which I was intending to try peas against peas for earliness and fruitfulness, I determined on the same ground to try autumn-planting potatoes. Therefore, on the 26th of November I began at one end of the border with *Cormack's Early May* peas, and eight feet from that, one row of *Early Warwick*, and between these two rows of peas I planted three rows of *Ash-leaved potatoes*, doing the same until I had filled half the south border. On the 26th of December I sowed one row of *Early Warwick*, and eight feet from that, one row of *Shilling's Early Grotto* pea, leaving the space between to be planted with *Ash-leaved potatoes*, which had been put in cinder-ashes on the 26th of November. These potatoes were planted between the rows of peas on the 14th of February, and they exceeded the others planted on the 26th of November by a fortnight. They were much more in quantity, and in quality much better.

I think it very unwise of those who mean to plant potatoes, and have no seed, to postpone buying it until planting time; it should be bought at the latest before September is out, for we cannot tell what process it may go through after that time. I think the storing away the seed quite half the battle in obtaining good and healthy crops of potatoes. The potatoes I put in cinder-ashes this year, on the 25th of November, were one bushel of *Ash-leaved*, and one bushel *Sodon's Oxonians*, but I have tried *Early Frame*, *Early Manly*, and *Fox's Early*, with some others. If you and I should live, and be well, I will tell you at what dates my potatoes were finally planted in the common quarters, and what was produced on a given space. I had about two acres of potatoes in a field in 1845; there were five sorts, and they puzzled me much. I asked all the wisacres I knew, but not one of them could unriddle the mystery; however, fearing I may tire you, I will subscribe myself, a thinking gardener—J. A.

[We shall be glad to have particulars concerning the crop which puzzled you, and to hear from you at any time, and on any subject. Practical information is always valuable.—Ed. C. G.]

GUINEA FOWLS.

A FEW remarks upon Guinea Fowls may perhaps be acceptable to some of your readers, from one who has kept them for seven years, and during that period devoted no little time and attention to them. We believe that those birds, if properly treated, are very valuable accessories to the poultry-yard, but they are generally passed over by those who have written books on poultry, either with silent contempt, or with a few hurried remarks, betraying the writers' ignorance of their real qualities and propensities. I would advise those who wish to commence keeping them, to procure a batch of eggs and set them under a quiet hen, and so rear the young Guinea Fowl upon the spot where they are to be kept. The old birds are very self-willed, and can only with difficulty be made to take up with a new abode, and even if they are imprisoned a few days, the probability is that, when they are released from confinement, they will lead their keeper a pretty scamper through the parish, and at last elude all pursuit upon the topmost branch of some inviting tree. If old birds be procured, the only thing to be done is to cut the feathers of one wing and so render flight impossible.

I say that the hen under which the eggs are set must be a tame and quiet one, because it is of great consequence to keep the young ones tractable; they are naturally a very timid bird, but if kindly treated when young, they become very docile and much attached to their master. I have some

old ones which will not only take food from the hand, but when the windows are open in summer, attracted by the white cloth upon the table, will come and take up a position between my two dogs, and lay claim to an equal share with them. If very tame, they may be allowed to hatch their own eggs; but I advise no one to try this unless the old Guinea hen is very tractable indeed. They are so fier when they have chickens, that they will attack the person who feeds them with great fury, scattering their chickens right and left, and trampling them under foot, at the imminent risk of life and limb. One of my hens has reared a batch for three successive years; this year I discovered her on the 18th of August, sitting upon twenty-five eggs, under a heap of sticks; she brought off twenty-one chicks, only two of which now survive; they will not bear cold, and the egg ought never to be set after June. No amount of care will keep the little things alive in frosty weather; they become crippled in their feet, and apparently die of consumption; hatched in May or June, and carefully tended, they are not at all difficult to rear. The best food is chopped egg and dry bread-crumbs, and once or twice a-day they should be fed with curd made by stirring a tea-spoonful of powder of alum in a quart of boiling milk.

It is a great mistake to suppose that it is necessary to keep them in pairs. I one year kept seven hens and two cock birds, and scarcely an egg was bad; and this year I had four hens and one cock, and I have reared more than fifty young ones.

It is a good plan, when no more eggs are wanted for setting, to kill the cocks, and rear young ones for the next year; the old birds being a perfect nuisance to the rest of the poultry-yard, especially at feeding-time, when they attack on all sides, not sparing their own relatives. My own fowls preferred losing their supper to braving the incivility of the old Guinea cock. If only one cock be kept the hens will lay in the same nest; and it is peculiar, that if one leaves for another, all follow her example.

I have them of three different colours—the common sooty, well known that it need not be described; another kind of a light slate-colour, in which the eyes of the feathers are distinctly perceptible; and another, in which the whole plumage is of a snowy whiteness. I have heard of a breed nearly black in Lincolnshire, but have been unable to obtain them.

They will not do to keep in any small, confined place; they must have room to roam about. Mine are well contented with the lawn and churchyard. When grown up they require much less food than common fowls, being incessant foragers for themselves; and as they are not expected to lay in winter, there is no need of high keep in cold weather. Grains or any other refuse, with a little corn, will do quite well. They have a great objection to roost in a dry, covered place, and require to be driven in night after night, which is no easy thing to do unless they are very tractable; in a house being in close proximity to the church, I am obliged to keep them prisoners until divine service is over, the noise arising from forty or fifty together being intolerable. I say to all who desire to keep them with pleasure and satisfaction be sure to make and keep them tame. A CLERGYMAN.

SOLANUM MEXICANUM, AS A BEDDER.

ON reading Mr. Appleby's interesting letter on the *Solanum* I was amused by a few words he made use of:—"But it is too common even for our friend Mr. Beaton to make flower-bed of;" for this brought to my remembrance *Solanum* that used to be grown, some few years ago, for the sake of its flowers, by an enthusiastic gentleman a few miles distant from here (Bury St. Edmund's), which would make a very pretty thing for a white bed. It grows from twelve to fifteen inches high, flowers white, with golden anthers, and lasts from the middle of June until the frosts cut them off. It can be readily increased from cuttings or tubers which, however, are produced very sparingly. Therefore cuttings are the best to depend upon. Strike them in cucumber-bed, and as soon as they are rooted pot them into very small pots, using light sandy soil. As soon as they begin to fill their pots with roots, get them into a

frame, to harden them off before turning them out. Then fix upon a small bed—I should think a round or an oval one; but no matter what shape it is, it should be concreted at the bottom and sides. The bed to be about two feet deep; for if they are even six feet deep they will send their little tubers to the bottom, and, of course, be so much the later in flowering. Fill the bed with light sandy loam, and give no manure, except about once in four years, and then a little top-dressing, with vegetable soil, is best. Plant them one foot apart all over the bed; and when once planted you never need trouble yourself to plant any more for years to come, except to fill up any gaps that may happen. This little pet used to be called the Mexican Potato; and if my fellow-readers would give it one trial, I think they would be amply repaid for their trouble by the little neglected *Solanum Mexicanum*.

CHARLES LINNET.

TO CORRESPONDENTS.

. We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London."

DESTROYING UNPLEASANT SMELLS.—A Post Captain of the Royal Navy writes to us thus:—"In your number of the 27th of November, 'A Curate' on the subject of disagreeable smells, you recommend, as an antidote, 'Chloride of lime'; and as you state that you know of none other of a more agreeable nature, I have taken the liberty of forwarding to you the accompanying document relative to Sir William Burnett's deodorizing fluid, the properties of which in the destruction of all disagreeable effluvia within its influence are of a most powerful and wonderful nature. It is quite colourless, and, if sufficiently diluted, may be sprinkled with impunity on the most delicate fabrics in a drawing-room. The benefit I have at times derived from its use is beyond all praise." It may be obtained through any chemist in 3s. and 1s. 6d. bottles.

BEDDING GERANIUMS (R. L. jun.).—You will see by this number of THE COTTAGE GARDENER, that Mr. Beaton has retired from service, but your box reached him at his house near London. The Scarlet Geranium from Paris, No. 1, is the old *Fothergillii*, an excellent bedding sort, but now little known in England, and when we do meet with it, nine gardeners out of ten confound it with *Crystallinum*, or the *Coral Scarlet*, of which there are three or four sports or seedlings in cultivation, the dwarfest, and, perhaps, the best of which, is *Lucidum*. No. 2 does not belong to the *Diadematum* section certainly, but all the flowers had fallen to pieces, and unless it is *Touchstone*, it is new to us. The fallen petals look exactly like a *Rouge et Noir*, but the leaves being smooth, it cannot be that variety. *Diadematum regium* is in the trade, and in public and private establishments also, but not yet on sale, we believe.

SEEDS AND ROOTS FOR EMIGRANT (R. W.).—Your friend going to South Australia, should take a full collection of garden and field seeds and roots; the seeds to be put up in coarse brown paper, and hung up between decks, and the roots in a strong wooden-case, packed in sawdust. A selection of Dahlias and Fuchsias might thus be packed with some of our best potatoes, but we would rely most on seeds. It is of little use trying cuttings, unless you would like to have some figs. All the best grapes in Europe are there already, and in abundance.

KILKENNY ANEMONE (S. S.).—You say "the Kilkenny Anemone is a fine snowy, semi-double variety, which seems not very common in cultivation." We never heard the name before. Your box of seedlings of it, sown last April, and now in full leaf, will be safe enough if you place it under a wall full in the sun, which is a better plan than planting them out. When the leaves all die, you can gather out the roots from the top soil, and lay them in a dry place till next planting time, October.

BEES.—TAYLOR'S BEE-HIVES (A Subscriber from the First).—Mr. Taylor's hive, as seen in the Crystal Palace, was 12½ inches by 13½ inches, but Mr. Taylor has since made an alteration, which he considers to be an improvement. Every particular, as to the dimensions of this hive, as well as its many advantages, will be given by Mr. Payne, in his *Apiarian's Calendar* for January.

ROSES FOR A VERANDA (A Lover of Roses).—There are none in your list fit to be planted against the pillars of the veranda, but the following six are well suited for planting against the house under the veranda, and you must give them abundance of water in the growing season, and once a fortnight in the height of summer. A good watering over the leaves would encourage them surprisingly. Give them a very rich border, and they will do better on their own roots in so favourable a situation; or, if you like them worked, let the stocks be not longer than four inches. *Queen of Bourbons*, *Mrs. Bosanquet*, *China*, *Lamarque*, *Nisette*; *Paul Joseph*, *Bourbon*, very dwarf; *Devoniensis*, tea-scented *China*; *Souvenir de Malmaison*. *Grat des Batailles* and *Beauty of Bathurst* do better in the borders than in pots, unless you are a very good grower, and then you could only use them for gentle forcing; all your veranda ones are excellent pot-roses. Early in the spring is the best time to inarch Camellias.

EVERGREEN CLIMBING ROSES (Well-wisher).—For two dozen best evergreen and other climbing roses, take two *Felicite perpetuelle*, creamy white; two *Myriantbes*, light pink; two *Princess Louise*, bluish white; two *Princess Maria*, pinkish rose; two *Rampant*, pure white; and two *Spectabile*, lilac rose—all these are the best evergreens. The following are pure Ayrshires, except the *Boursault* and *Madame d'Arblay*:—Two *Crimson Boursault*, fine purplish crimson; two *Ayrshire Queen*, dark

crimson; two *Rose Angle*, rose colour; two *Bennet's Seedling*, large white flowers; two *Ruga*, pale bluish; two *Madame d'Arblay*, fine creamy white. For two dozen standards, take these hybrid perpetuals:—*Barron Prevost*, fine rose colour; *Comte de Montihuet*, reddish purple; *Dr. Marx*, carmine; *Duchess of Sutherland*, bright rose; *Geant des Batailles*, crimson, the best; *Jacques Laffite*, dark rose; *La Reine*, rose colour; *Madame Laffay*, crimson; *Marquis Bouilla*, bluish; *Mrs. Elliot*, light crimson; *Robin Hood*, carmine; *William Jesse*, lilac crimson; and *Standard of Marengo*, crimson lake. And the following Bourbons:—*Acidalie*, *Armosa*, *Celimene*, *Charles Souchet*, *Le Grenadier*, *Marchal du Palais*, *Queen of Bourbons*, and *Souvenir de Malmaison*; also *Crimson Perpetual* and *Crimson Superb*, damask roses; with *Princess Clementine* and *Princess de Lamballe*, two of the best white roses.

SOWING SEEDS OF SALVIA, &c. (H. W.).—There is no advantage in sowing seeds of *Salvia patens*, *Penstemon*, &c., just now; but, on the contrary, the middle or end of February will be time enough to sow these seeds, and towards the end of March is the right time to plant roots of *Tropeolum tuberosum*.

PEA STOPPING (Verax).—We have applied to the party who furnished us with this improved mode of cultivating the pea, detailed at p. 338 of our last volume, and the reply is, "The plan answers best with the robust-growing kinds. Indeed, it would not be judicious to have the *Early Frame* and *Charlton* through the season, as they are esteemed only for their earliness."

PLACES FOR BEDS (Bertha).—It would not be difficult to give a plan to meet your wishes, but nothing must tempt us from our resolve never to furnish a plan for any one.

ITALIAN RYE-GRASS (E. Dingle).—You may try this on your vacant plot, but we fear it will not come in early for feed for your cow, &c. You will find what you require in our monthly papers on Allotment Gardening and Farming.

FANCY PIGEONS (Evesham).—We cannot recommend dealers.

GARDEN MICE (X. Y. Z.).—The best mode of preserving your bulbs from these depredators, is to cover the surface of the soil above them with finely sifted coal-ashes two inches deep. When the leaves appear, the ashes may be removed, as the mice then cease to find the bulbs palatable. The best trap for these mice, is a brick with one of its ends raised an inch or two from the ground by a piece of thread tied by its ends to two little stakes, with a pea fastened in the middle by the thread. In gnawing the pea the mouse bites the thread, and the brick descending he becomes his own executioner.

EXCHANGE OF FOWLS.—We have a letter from B. K. (No. 165, page 140), but have not his direction. Will he send it us?

WALNUT KEEPING (Jane B.).—We keep ours quite fresh in a jar, in a cold damp cellar.

SALT, SOOT, AND LIME (J. Roberts).—We do not know of any one who doubts each of these, whether separately or mixed, being excellent manure. Lime is not the best form in which to apply calcareous or limy matter "to an exhausted very light soil;" chalk alone, or chalk mixed with earth from a ditch or pond, would be much better, for it would improve the staple of the soil. It had better be applied immediately. Never apply lime with dung of any kind, as it helps to drive off the ammonia, one of the most valuable components of the dung. You had better use horse-dung alone, applying it now before sowing your Peas, though nothing but urgent necessity should induce you to sow them on ground freshly manured. In March put some mulch about the Peas growing on your very poor light soil. You may use soot and stable manure together, digging them in immediately before you insert a crop. Put the salt on in the spring, when the crops are growing, sprinkling it very thinly about their roots. Over Asparagus and Sea-Kale beds you may sow it thickly.

GEESSE (Y. O.).—Our correspondent wishes for information as to "the best way to fatten geese, and also the readiest mode of telling a goose from a gander."

CARMAN'S STOVE (W. D., and T. S. R.).—Charcoal answers as well for this as the prepared fuel. The quantity used, varies with the degree of exterior cold.

RUSTIC FURNITURE (W. M.).—It is impossible to give you instructions in this by writing. There is a little volume called *Ideas for Rustic Furniture*, consisting of garden chairs, seats, &c., of which, we think, you might obtain a copy for three or four shillings, of Mr. Wright, bookseller, Haymarket, London.

NAMES OF PLANTS (B. C.).—Yours is *Tecoma radicans minor*, or Smaller-rooting *Tecoma*, a hardy climber. (*Queen Mab*).—The broad-leaved one is *Rhamnus Alaternus*, or Broad-leaved *Alaternus*. The other our common Savin, *Juniperus sabina*. Of the evergreen oaks, we should select *Quercus Ilex*. (*H. W. M.*).—Thanks for the *Erigerons*, but we fear they are too withered to recover. They should have been folded in damp moss. If you look at p. 140 you will see the names of your shrubs, accidentally omitted before.

CAMELLIAS (P. P.).—There is no question about the practicability of growing the Camellia in the "snug corner" of your garden, or, indeed, in any corner where the Portugal Laurel thrives; but then, of what use are they? We never can enjoy their flowers in England without artificial shelter, because the least puff of cold wind destroys their beauty as soon as the buds open. The different species of evergreen *Herberis* would suit you well as "dwarfish flowering shrubs," also *Wiegela rosea*, *Forstythia viridissima* (double and single), *Dwarf Almonds*, *Cotonaster microphylla*, *Magnolia purpurea*, and, by all means, *Pavia macrocarpa* and *Clematis tubulosa*, a dwarf, deciduous, hardy new bush, which flowers in October.

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WEEKLY CALENDAR.

M D	W D	DECEMBER 18—24, 1861.	W/ATHER NEAR LONDON IN 1850.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
18	Th		29.424—30.165	44—26	S.W.	19	4	49	2 34	25	3 19	352
19	F	Gray-headed Gooseander comes	29.841—30.344	30—26	N.	—	5	50	3 55	26	2 49	353
20	S	Sun's declination 23° 27' S.	30.240—30.100	40—19	N.	02	5	50	5 14	27	2 19	354
21	SUN	SUNDAY IN ADVENT. ST. THOMAS.	30.273—30.231	40—22	S.W.	—	6	51	6 31	28	1 49	355
22	M	Black Duck comes.	30.524—30.429	41—22	N.	—	7	51	sets.	29	1 19	356
23	Tu	Orange-breasted Gooseander comes.	30.586—30.534	38—25	N.W.	—	7	52	4 a 46	1	0 49	357
24	W	White Nun comes.	30.455—30.173	43—31	S.W.	—	7	52	5 46	2	0 19	358

DR. HENRY COMPTON, Bishop of London, consistent even in death, lies in the church-yard of Fulham, for he was always opposed to interments within the sacred edifice, and never deviated from his recorded and most wise opinion. "The church is for the living—the church-yard for the dead." We wish that his epitaph had also been in plain honest English, for in that case every cottager might read this admirable man's dying testimony. That testimony is in these few words. "*Henry of London. Sane in the Cross*," being a portion of the 14th verse of the 6th chapter of the Epistle to the Galatians. The date, 1713, refers to that of his death, for on the 7th of July, in that year, he was released from the burthen of eighty-one years of mortality.

Fulham is an appropriate burial-place for one who so strenuously and effectually promoted the improvement of our national gardening, for even in domesday book, eight Cotaril (neat-houses) and their gardens, are enumerated, as being in Fulham; and the gardens of the Bishop's Palace there began to be celebrated even in the reign of Elizabeth. Dr. Grindal was then Bishop of London, and one of our earliest collectors and cultivators of garden plants. He first procured the Tamarisk from Switzerland, and even in his time the Palace Gardens had acquired that celebrity for grapes which they still retain. Dr. Compton succeeded to the Bishopric, and, consequently, to the possession of the gardens, in 1674. His tenure of them was very lengthened, and he enriched not only their borders, but their greenhouses, to such an extent, that they were considered as containing a greater variety of plants than any other in England. This he was enabled to do by the happy coincidences of the increasing commerce of the nation, the more frequent intercourse with Holland, where vast botanical collections from her colonies had been made, and by a protracted residence of thirty-eight years at his See. To his taste for gardening was united a knowledge of botany, a scientific attainment, observes Dr. Pultney, not usual among the great of those days. He was a great encourager of Mr. London; was one of the first to promote the importation and raising of ornamental exotics, and was very curious in collecting them, as well as in cultivating kitchen-garden plants, especially kidney-beans. In his stoves and gardens he had above 1000 species of exotic plants, a greater number than had been seen in any private English collection. In his gardens he cultivated a great many plants that had been previously esteemed too tender to be exposed unprotected to our climate, and every thing was done under his own superintendence.

Switzer, who knew him personally, says:—"This reverend father was one of the first that encouraged the importation, raising, and increase of exotics, in which he was the most curious man in that time, or perhaps will be in any age; and by the recommendation of chaplains into foreign parts, had likewise greater advantages of improving it than any other gentleman could. He had above 1000 species of exotic plants in his stoves and gardens, in which last place he had endemized a great many that have been formerly thought too tender for this cold climate. There were few days in the year, till towards the latter part of his life, but he

was actually in his garden ordering and directing the removal and replacing of his trees and plants. A virtuous and laudable pattern, and by a person by whom *gardening* has not a little been recommended to the world."

When Dr. Compton died, his collection of plants was purchased of his successor, and added to the stock of the Fulham Nursery, then but recently founded there by Mr. Gray. Such despoilings are always subjects for regret, and in this instance especially, for the gardens were ever open to the inspection of the curious and scientific; and we find Ray, Petiver, and Plukenet, in numerous instances, acknowledging the assistance they received from the free communication of rare and new plants out of the garden at Fulham. Many of Plukenet's figures were engraved from specimens out of the Bishop's garden; and some from a book of drawings in his possession, quoted under the name of *Codex Comptonianus*. In the second volume of Ray's History of Plants, page 1798, we find a catalogue of some new species of trees and plants, observed by the author in this garden. These were principally of North American growth. The reader who is desirous of seeing a more ample account of the garden at Fulham, is referred to a relation of the state in which it was found in the year 1751, written by the late Sir William Watson, and printed in the 47th volume of the *Philosophical Transactions*.

Little that is appropriate to these pages remains to be said of Dr. Compton. The leading feature of his public conduct during the times of ascendant Popery in which he lived, is pointed out by his popular epithet—"The Protestant Bishop." How much he endured, and unyieldingly endured, in defence of his faith, may be read in our usual Biographical Dictionaries, for his conduct was sufficiently prominent and influential to occupy pages in our national history during the reign of James the 2nd, who lost his crown in his effort to establish Romanism in these realms. Dr. Compton is also memorable for his powerful, because temperate efforts, to unite in one Church the numerous sects of Protestants, and though he failed to effect his purpose, he has the unmistakable praise of being abused by the violent and bigotted of all parties.

Dr. Compton was the youngest son of the second Earl of Northampton, and born in 1632. He inherited the courageous spirit of his father, who died fighting for Charles the First. The future Bishop was but ten years old when the battle of Edge-hill was fought, and he was in the royal camp during that day of slaughter. After the Restoration of Charles the Second to the throne, he accepted a cornetcy in a regiment commanded by the Earl of Oxford, but soon left the profession of arms, and enrolled himself as a minister of the church. Here he obtained preferment rapidly, in 1674 being elected to the bishopric of Oxford, and in 1676 he was translated to that of London.

METEOROLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 44.5° and 34.2° respectively. The greatest heat, 57°, occurred on the 23rd in 1827, and the lowest cold, 12°, on the 23rd, in 1830. During the period, 92 days were fine, and on 73 rain fell.

UNTIL within a very few years preceding the present, poultry, in the estimation of the farmer, were like the game upon his lands—tolerated as a source of pleasure, though rather an expensive one—it was thought that the roast fowls and boiled eggs were dearly purchased by the corn they consumed, and the crops they damaged. Even now, in the very great majority of instances, the produce of the poultry-yard is considered as the housewife's perquisite, that will not bear a very strict examination as to whether it is a source of profit or of loss. Nor is this estimate far from being correct, mismanaged, or rather unmanaged, as poultry usually are.

A very different, and more correct appreciation of the value of poultry, as a profitable stock, is rapidly on the increase; and there is no doubt whatever, that, when properly managed, they will return a larger gain, in proportion to the capital employed, than any other department of a farm. This is no theoretical opinion, but is shown by many a balance-sheet; neither is it a new result of modern science, but only a revival of the long-neglected experience of our ancestors; for we noticed, at

page 285 of our sixth volume, a work by M. Choiselet published nearly three centuries ago, in which he maintains that any one keeping 1200 hens, might, in those days, clear annually five hundred pounds. Nor should the farmer, in his estimate of the profit arising from his poultry-house entirely omit an estimate of the value of their dung. We so speak, because we know of instances where this manure, mixed with earth and ashes, has been drilled in with seed, and proved as valuable a fertilizer as guano.

We have said that a more correct estimate of the value of poultry is rapidly diffusing over England, and we need no other testimony than that afforded by the list of exhibitors at the *Birmingham and Midland Counties Show*, on the 9th instant. These exhibitors are not confined to one district, though Suffolk seems to take the lead, nor to poultry breeders for amusement, for a large proportion of the poultry exhibited belonged to large practical farmers.

In conclusion, we shall give a report of the meeting from the pen of the Rev. E. S. Dixon, so favourably

known by his work upon poultry; but before concluding we must warn our readers that, when we press poultry-keeping upon their attention as a source of large profit, we presuppose that they will pay more attention to the selection of their stock, and more attention to their management, than is too usually *not* given. Fowls deserve as much attention on these points as do our short-horns and our south-downs; without which attention these more expensive portions of farming stock would never have reached their present elevation of profitable excellence.

Birmingham has just been offering to public admiration another unprecedented collection of poultry, of very high, though unequal merit. This inequality among the classes was greater than last year; and such fluctuations must be expected for some time to come, until this rising department of rural economy shall have established itself in the position it deserves to occupy, and its principles become settled. Thus, the Spanish fowls were by no means so good as in 1850, and gained no extra medal; this was, doubtless, merely accidental, for some good birds were present. Mr. J. H. Peck, of Wigan, was the most successful exhibitor of Spanish fowls. The number of good White Dorkings was less than there might have been; and the cultivators of Malays had been so lax in their exertions, that for Class XIII. (a cock and three hens of that breed), neither a first nor a second prize was awarded—the best present being only third-class specimens. The waning glory of these birds is hardly to be lamented, when we regard their small claim to utility and their questionable pretensions to beauty. For Class XV. (cock and one hen, Malay), again no first prize. The Golden-Pencilled Hamburgs, generally so charming, and such prime favourites, from Birmingham westwards and northwards, hardly did themselves justice; nor did the Polish fowls. The Bantams also had declined; of these, not a few little family parties had better have been hidden within the crust of a pie than displayed in a pen in Bingley Hall. And here ends the unpleasant and dangerous duty of fault-finding.

To give an idea of the number of specimens congregated, the judges' list contained 1,036 entries, or pens made up of about 4,000 head of fowls.

The coloured Dorkings maintained their old-established reputation, and numbered exactly ninety pens. For the judgment of these, no appeal to the scales and weights happened to be necessary, and the Judges had little time to gratify their own curiosity in this respect. But, we believe, had there been leisure for them to do so, that the results would have been unexpected and surprising. The contents of a Dorking fowl, if we may so speak, are very cleverly packed; if there is much meat upon them, there is really more than there appears to be. The Hon. and Rev. Mr. Lawley was one of the most successful exhibitors, and the gainer of an extra medal. Mr. George Lowe, Smithfield, Birmingham, obtained the first prize for a cock and three hens, and also an extra medal; the second prize in the class falling to Mr. T. B. Wright.

The game fowls, as heretofore, were extremely beautiful, and in wonderful variety. Every one knows how handsome are the males of these breeds; but the excellent arrangements of the exhibition committee permitted close inspection of the peculiar elegance of the hen birds. There they stood ranged, in many-tinted plumage, a troop of lovely vixens, petulant and furious, not merely looking as if each one could eat up a rival, but in not a few cases actually beginning to do so, to the annoyance of the attendants who have to act as poultry police, and keep the queen's peace among the fowls. One scarcely knew which most to admire in this department, whether the dainty Worcestershire Piles, the gorgeous Black-breasted Reds, the harmonious Duck-wing Greys, or the swarthy Birchen Greys and Blacks, looking very like imps disguised in half or entire mourning. It needed little imagination to supply the demoniac fire to flash from their eyes and nostrils. Three first prizes were awarded here; 388, with an extra medal, to Mr. E. H. Francis, Ham Hill, Worcester; 385, Messrs. W. and J. H.

Parkes, Camp Hill, Birmingham; and 362, Mr. E. L. Bullock, Hawthorn House, Handsworth. The pens of six chickens, as well as the single cocks and hens, were deserving of high commendation.

At the present day, however, the classes which excite the greatest *furor* amongst fanciers are unquestionably those consisting of Cochins China fowls. To these rush the crowds of male and female amateurs, and are with difficulty dislodged either by entreaty or force. Those who love to be squeezed in a crowd were gratified by their visit to the region of Cochins Chinas. Here, again, was a large collection with great merit. To Class X., Cochins China cock and three hens, were awarded two first prizes, and to each an extra medal, viz., 179 (hatched on the 20th of May last), Mr. G. J. Andrews, Dorchester; and 171, Mr. T. Sturgeon, Manor House, Greys, Essex. It is quite a mistake to suppose that, in forming a judgment of the merits of this breed, mere weight is, or ought to be, the main qualification. In Mr. Sturgeon's pen the cock weighed 10½ lbs., the hens, 9½ lbs., 8½ lbs., and 8 lbs. respectively. In Mr. Andrews's the cock weighed 8½ lbs., one of the pullets (for they were all young birds) 5½ lbs., and the rest on a par. Yet, if it were necessary to pronounce which was the superior lot of the two, we should decidedly give a casting vote in favour of the latter. Both these lots were bright, light-coloured, feather-legged birds, with the least possible allowance of tail—(no sickle-feathers in that of the cock)—great bundles of *fluffy* feathers about the thighs, and a very "Bloomerish" look in the aspect of the females. Mr. Sturgeon has had Cochins Chinas to weigh as much as 12 lbs., but not higher. A very meritorious pen was 209, exhibited by Mr. F. C. Steggall, of Weymouth, and consisting of six light pullets, hatched last April. These obtained an extra third prize. It is a pity a cock was not substituted for one of these *demoiselles*; but even a little nunnery like this is less displeasing to the eye than a pen of six cock birds. For two of these, £15 was offered, and refused—the price of a pony or a good cow. Perhaps, another year, the rules will empower the judges to disqualify pens consisting exclusively of either sex. Some handsome White Cochins Chinas, as 238, from Mr. Edmund Herbert, Powick, Worcestershire, and 281, Mr. George Graham, Yardley, Worcestershire, received prizes. Altogether, the number of competing lots of Cochins China fowls was 154. The excitement they have caused among the parties interested is barely credible. Louis Napoleon and the French Revolution are disregarded as but of secondary importance. A pair of Cochins China fowls are the subject of this year's Poultry Medal, very neatly executed by Mr. Thomas Ottley, whom we congratulate that the material which bears the impress of his portraits in relieve, saves him from all disputes and vexed questions pertaining to colour.

We were very glad to see a much improved extra class—Ornamental Poultry and Water-fowl. An exhibition of the rank attained by this ought to be, in its way, an encyclopedia of its subject, affording information to the student, not in printed words, but by displaying a museum of living specimens as copious as may be. This year, Pea-fowl, for the first time, graced Bingley Hall, and no one who saw them there would wish them to be absent on any future occasion. Besides those of the normal species, there were very good pied and pure white specimens, each unfortunately companionless; and also a good pair of the not common Japanned—not as the catalogue has it "Japan" birds, (1,022). Several pens of Golden pheasants, standing the public gaze better than might have been expected, and probably overwhelmed with despair at their *début* on this stage, were contributed by various gentlemen. Lot 1,042, cross-bred birds between the Golden and Common pheasant, from Lord Beauchamp, and 1,051, a cross-bred between the mallard and the pintail, from Lord Wenlock (who has many more such, and with whom they have been produced in a state of comparative freedom, and not upon compulsion), were rare and highly interesting; for the late Lord Derby's wonderful experiment with the Varicolor pheasant, as detailed in the *Quarterly Review* for March last, has shown that all *a priori* reasoning on the subject of hybridization is of little value. A pair of partridges, 1049, made a pleasing little pen. A few good Silk fowl served to show many of the spectators that there were more things on earth than they had dreamt of in their philosophy. The

Rumpless fowls, it must be confessed, are more droll than symmetrical; still we were glad to see them represented here. How can one account for the absence of their *uropygium*? Did their ancestors unwarily venture under a portcullis, like Baron Munchausen's horse, or were they guillotined at the *wrong end*? A popular solution is, that they came from the Isle of Man, famous for similar *lusus nature*; the true Manks cats, for instance, being unadorned with tails. The Frizzled fowls (878 and *seq.*) were not less delightfully ridiculous. They, it is said, owe their peculiarity of plumage to the accident of coming out of the shell backwards. The lavender-grey Guinea fowls were good; and the dark pair, with the white spots nearly obliterated, and looking much as if they had emerged from a bath of ink, were really rarities. The first we ever saw were in the Royal Poultry Yard, at Windsor. His Royal Highness Prince Albert contributed a pair of great curiosities (852, Scotch breed). They would take the place among fowls that the turnspit does among dogs, having large and long bodies, with short, dumpy, feathered legs. They would suit any fancier who was nervous lest his poultry should escape by running away; or, if Procrustes had been an amateur, he would make such as these out of some long-legged variety. The cock, too, had a strange duplicate comb, like a single comb split in two vertically.

The geese and ducks were both most praiseworthy classes, exhibiting a good assortment of their kinds. Thus, 886 contained three good Brown China geese from Lord Howe. The weights were extraordinary. The first prize geese (805), weighed 28½ lbs., 17 lbs., and 15½ lbs. respectively; of course, the ponderous bird was the gander, who was deservedly decorated with an extra medal. Others showed 20½ lbs., 19½ lbs., and 17½ lbs.; again, 19 lbs., 17½ lbs. and 17 lbs.; again, 19½ lbs., 18½ lbs., and 17½ lbs. These results are after the deduction of the bag in which they were weighed. Among the ducks were equally well-fed specimens. The first prize, Aylesburys, weighed, a drake and three ducks, together, 24½ lbs.; the second prize birds, hatched only last May 25th, 24½ lbs.; the third, 23½ lbs. But the Rouen ducks were more than a counterpoise even for them; the four best birds (839), from Mr. Edward Hewitt, weighed jointly 26½ lbs. Besides these, there were several good pens, as of Call ducks, whose merit does not lie in their size, but the contrary. Their forte lies in their loquacity—dare we print it?—in their *loquacity*. Even in Bingley Hall they could not maintain a respectful silence. Some handsome Black East Indian ducks were shown. Specimens of this kind have been fitted with one more new synonym, having been alluded to as the "Black Botany Bay" breed. Not less commendable was the class of turkeys.

The Pigeons (764-883) were an improvement on the muster of last year. Good Toys, of varieties which are now becoming scarce, Turbits, Jacobins, Black Fantails, &c., made their appearance. Several pairs of Archangels, glowing in bronzy hues, were especially beautiful. To see these birds to advantage, they should be basking and cooing in the sunshine.

To complete the collection, extra pens for sale were sent by Messrs. Baker, of Half-moon Passage, Gracechurch Street, consisting of Bantams, Black and Aylesbury ducks, Dorking and Spanish Fowls, &c. From Mr. Baily were very good Aylesbury and Call ducks, some Sebright Bantams of great beauty, besides other specimens of poultry, quite up to that gentleman's usual standard of excellence.

The general arrangements were admirable. The localities assigned to the several classes were such as to facilitate the inspection, both by the judges and the visitors. Without this excellent system, it would have been difficult for either parties to do justice to so vast a collection.

In our next number we will give a list of the chief prizes.

GARDENING GOSSIP.

ANOTHER horticultural chief has retired, but not into private life, like Mr. Beaton. Mr. William Barnes, who, during the last nineteen years, has borne off no

less than eight hundred prizes at the great metropolitan shows, has left the service of R. Hanbury, Esq., at the Poles, Hertfordshire, and is now the occupant of the Camden Nursery, Peckham, Surrey, lately held by Mr. Watts.

Potatoes have been raised by J. Gaskell, Esq., of St. Nicholas, from seed potatoes received from New Zealand. The seed was obtained for the purpose of testing an opinion, that the produce from seed raised in those islands, where the potato disease is unknown, might be free from its attack in this country. Mr. Gaskell's experience proves the contrary, as, in three experiments, the produce was as much infected as was that from English-raised seed.

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.



CHARMING SIPHOCAMPYL (*Siphocampylus amcenus*).—*Gardener's Magazine of Botany*, vol. iii. 273.—This has the richest-coloured flowers of all the species of this genus, that have been yet described, besides being one of the newest. They are of the richest deep-red-orange, and are produced on the spike more numerous than our woodcut represents. The flower-spikes, as is usual in this genus, are terminal, and the leaves are much after the shape and size of those of *Torenia Asiatica*. The history of the plant is involved in some obscurity. It is said by some to have sprung from seeds, or portion of the roots, in soil which was sent with orchids from the Brazils, to the garden of the king of the Belgians, at Laeken, about two years ago; while others assert, and with more reason, that it is a native of some part of central America. Be that as it may, it first flowered under cultivation in Belgium, and was named by Dr. Planchon, in the *Flore des Serres*, vi. 610. The Messrs. Knight and Perry introduced it to England in 1850,

from the establishment of M. Van Houtte, of Ghent. It flowered in the exotic nursery of the above firm, in November 1850, and again last summer. Like all the plants in the same order, this has an acrid milky juice, which, if not altogether dangerous, is somewhat suspicious. Presl, a German botanist, described this genus as a *Lobelia*, to which it is nearly related. *Siphocampylus* was named by Pohl, another of the travelling botanists of Germany, this name being derived from *siphon*, a tube, and *kampulos*, curved; in reference to the curvature of the tube of the flower. The specific name "charming" (*Amœnus*), is appropriate. In the natural arrangement it belongs to the *Lobeliads* (*Loeliaceæ*), and to the first order of the fifth class in the system of Linnaeus, *Pentandria Monogynia*.

Propagation and Culture.—No difficulty is experienced in propagating any of the species of *Siphocampylus* with which we are acquainted, from cuttings of the young tops of the shoots in the spring. The cuttings should be put in a cucumber-frame, or some hot place at once, and be guarded with a bell-glass in the usual way, and notwithstanding the great range of country the plants are known to inhabit in South America, the whole of them, while in a young state, either from seeds or cuttings, prefer to grow in peat, with a little leaf-mould and sand added. When they grow on to be strong healthy plants, they do better with about one-half loam in the compost. If such plants get out of health, however, they refuse to thrive in loam directly, and they can only be brought round again by the sole use of peat and sand, unless, indeed, they happen to be under the hands of a good gardener.

With the exception of *Siphocampylus bicolor*, the whole of this species delight in a mild, moist heat in the spring, but, truly speaking, none of them are real stove plants. As soon as they are near their full season's growth, say by the end of May, a frame or pit kept hot by the sun, without artificial heat, is far better for them, and numbers of other plants called stove plants, than all the stoves in the country, and when they come into flower, the greenhouse or conservatory is the right place for them. I make an exception of *S. bicolor*, as I believe it to be all but hardy. I had it out against a wall for eight years, and it proved a troublesome customer at last, the roots running a great way underground, and spawning up like couch-grass. The frost was kept from it, but I am quite sure a few inches of coal-ashes would be protection enough for the roots in winter, and if they were forked out in April, and put into a swampy bog-bed, it would flower that way the whole season, and make dense thickets.

D. BEATON.

THE FRUIT-GARDEN.

THE PLUM. — REST-PRUNING, &c. — (Continued from page 146).

Although the majority of our plums, under ordinary circumstances, may be pruned any time during the winter, yet there are both kinds and conditions of these trees which require some caution in this respect. Those which sometimes bear on the young or last year's shoots, are slower to exhibit their fruitful character on the annual wood than on the old spurs; and the oldest practitioner can scarcely distinguish the blossom buds on such wood until the swelling of the bud. Of such a character is the *Precoce de Tours*, which, although very old, is a very useful, early plum, and a safe bearer. *River's Favourite*, which is, we believe, a seedling from it, will probably prove of similar habit; and if we remember rightly, those of the old *Imperatrices* class are sometimes of this habit. Where any doubts exist, the amateur, or the inexperienced, may wait until March, when all doubts will be speedily set at rest.

And now a glance at the espalier rail, or the strained

wire trellis, very well adapted for many of the plums; indeed, it may as well be observed at once, that there is, in reality, scarcely any kind of fruit but may be made to answer well on these trellises; for if they fail, it will be more traceable to mismanagement than to the conditions under which they are placed. We have two strong, and, as we consider them, fundamental reasons for so strongly urging the general adoption of wire trellises; the one that they, or something like them, must, in all probability, be identified with future progress in kitchen gardens, or dressy grounds contiguous to them; and the other, that we do hope and expect to see the general adoption of coverings of some kind, whether as blossom retarders and protectors, or as subservient to a long succession of fruit.

In due time we shall have to recommend the use of copings to these simple structures, in combination with the retarding system; of this more in due course. Surely, now *double glass walls* for training fruit-trees on are about to be adopted at Bodorgan Castle, in Anglesey, and to be tested at the Horticultural Society's Gardens at Chiswick, as a feasible proposal, surely our readers will not take fright at the modest proposition of a few strained-wire-rods and a little canvass. The advantages, and supposed disadvantages, of the adoption of wire espalier rails, will form the subject of a separate notice before long. And now to the "rest pruning" of the plum.

It must be known to most of our readers, that plums, like many other fruit-trees, vary much in habit; some, as the *Washington*, the *Magnum bonum*, &c., if planted in a very liberal soil, producing young wood almost adapted for fishing rods. Others again, as the *Imperatrices* section, being of a very delicate habit, is in age apt to become too weak. Of course there will be an intermediate class, and such may be represented by the ordinary *Orleans*, although the latter sometimes produces very gross wood when young. Now, there is no fruit-tree in which gross wood is more inimical to the proper development of the fruitful parts than the plum. In trained trees, when young, and the soil unfortunately rich, the trees but too frequently have a tendency to produce these "robbers" in several places between the bole and the extremity of the branches; the sure tendency of such is to interrupt and appropriate the ascending sap, and thus to starve the fruit on the portions beyond them. Nor is this all; they, by reciprocation, call suddenly such an unnecessary amount of new roots into action, that, unless the root-pruning is resorted to, the pruning knife, or the finger and thumb, must be kept continually employed. Such is not the condition best suited to the permanent production of good crops of well-matured fruit; a uniform course of action is best adapted to that end, not feverish impulses.

All this is simply meant as a hint as to the soil used in planting them; proceed we now to the more immediate business of this paper. The *tying-down* method is what we practice with this tree, the pear and the apricot, and this is applied to nearly all the kinds. Such being the case, the main leaders are laid in about six or seven inches apart, in the smaller-wooded kinds, and at nearly nine in the grosser sorts. This will startle some persons, no doubt; those who have been accustomed to nail their shoots in very close, will marvel. Let it be understood, therefore, that on these leaders of ours, the young shoots of moderate growth are tied down in summer, *one on the heels of another*, without intermission. So that we have as many shoots, if that be a merit, as the close trainer, the difference is that ours are grouped. Now, long experience has shown, that to build an expensive wall, in order to accumulate more heat, and then to shade it all over, to intercept the solar rays, is to undergo a great expense for a very ill-defined object. There is about the same difference between our

system, and that of covering the wall with numerous small shoots, as there is between broadcast and drill-cropping. We, therefore, hold it a fundamental maxim, so to arrange the wood of the trees, as that the sun shall freely shine on alternating portions *totally unobstructed*. By such means, a reservoir of heat is contained in the wall, and this heat is emitted around and about the shoots long after sunset, especially if a good broad coping is over head to arrest the radiation. We felt obliged to point to this, in order to make the pruning comprehensible.

The first thing the pruner can do, is to remove all those very gross shoots that have unluckily escaped the growth-pruner's finger and thumb—such shoots in the large section as extend a half-yard or so in length. If they be leaders, of course they must be retained, but anywhere along the stem, as side or supernumerary shoots, they may be cut *clear away*, not leaving a morsel behind. In the moderate-growing kinds, what may be termed gross shoots will not be quite so long or so thick, but they may readily be distinguished. This refers to trees in which the "growth-pruning" has been neglected; where such has been properly carried out, there will be little for the rest-pruner more than simply a slight thinning-out.

Now, in the former case, whether the trees possess any gross shoots or not, if there be too many shoots, it is obvious that some must be removed. The pruner's business in such cases is to first survey his tree to ascertain its strength, whether in parts or in whole, for it sometimes happens that one portion of a tree is too strong, whilst another is too weak. In thinning-out then—into which process the chief of the labours may be resolved—he must first assume a maximum of strength as to those shoots which are to be retained, and having done this in his mind, he may at once proceed to remove all above this point, which may be considered supernumeraries. But, says a novice, how am I to know which are surplus shoots? Let it thus be defined. On the tying-down or succession system—by which term we shall designate it, as soon as we can fasten it on our readers' memories—we make a point of reserving all the short-jointed shoots, if possible, and sometimes in the Plum, if the wood be small, we lay them in so thick, that the base of one shoot is not more than three inches from the base of another. By base, we mean the point on the leader whence the young shoot proceeds. We have trained Plums now of the *Greengage*, *Royal Hative*, *Golden Drop*, *Orleans*, *Morocco*, *Precoce de Tours*, *Washington*, &c., which have been thus treated for some seven years or more, which bear annually very good crops—the *Greengage*, a shy plum, excellent; and before this plan was adopted, the trees were more famous for wood than for fruit. But be it understood, these trees were planted on the *platform-system*, and their roots are under such steady control, that little *pruning* has to be performed, and the least approach to exhaustion is met, nay, anticipated, by liberal top-dressings applied in the end of May.

However, as our present advice must be shaped to meet difficult cases, as our doctors say, the course of treatment must in some-wise differ—not in principle so much as degree. Now, the gross shoots having been cut clear away, and the remainder thinned duly out, according to previous directions, little remains to be done with old or bearing trees; the leading shoots must be laid in full length, and all suckers extirpated. If the trees are, indeed, too gross, let the operator at once root-prune; it is not, perhaps, the very best season for so doing, but never mind that. Directions for this proceeding will be found in back numbers.

About training the young shoots we need say little now; a chapter on training will not be without its use shortly. One observation must here be made, and that

is, that young trees of the Plum in the course of training, must be made amenable to the same laws as those of other trained trees.

Pruning for wood must of course be resorted to in their earlier stages; this was, we believe, described under the head "Cherry."

To those *planting* Plums, we would say, look well to the kinds in culture before you proceed. The lists in these days are numerous, and doubtless some good things are to be found amongst the novelties. Mr. Rivers has been the means of introducing many new American kinds to public notice; of these, however, we dare not say much from experience. He is a high authority, and must know full well by this time, which are adapted for the climate of Britain. Our Plum selectors must please to bear in mind that we have not by any means the extremes of heat and cold our transatlantic brethren are obliged to submit to. Besides, we find by the *Cincinnati Horticultural Review*, a periodical well befitting a new district, and which we receive regularly through the kindness of Dr. Warder, the Editor, that they have many ills to combat in fruit culture—among the rest, weevils in abundance.

R. ERRINGTON.

THE FLOWER-GARDEN.

MISCELLANEOUS CLIMBING ROSES.—Here I shall group together a few old and well-known climbing roses, without which no collection or selection can be considered complete. *Banksians*, white and yellow, require a good south wall, and rich light soil on a dry bottom. They flower—differently from all other roses—on the wood that was made the previous season; therefore, if we were to prune them in the winter, as we do other roses, we should never have any flowers from them, because the flowering wood would be carried off in the pruning. When they are young, or for the two first years after planting, they should be cut in close in October, but any time to the end of February will do; although I put much stress on having all roses, while they are young, pruned in October, they will not take much harm if the pruning is delayed two or three months longer.

I would also strongly advise to keep *suckers* from young roses, particularly the climbing ones, and more particularly these *Banksian* roses; for unless a clear, clean stem is first provided, there is no end to the confusion of their suckers. They are generally grown on their own roots, and that does very well when the soil and subsoil is favourable; but it is seldom that one meets with the real kind of soil in which they flourish to perfection, and one hears more complaints about the barrenness of *Banksians* than of any other roses. Whenever there are any doubts about the soil, or when they flower but sparingly, I would confidently advise to have them budded on short stocks of the *Felicite perpetuelle*, the best grower of all the roses known; and if six-inch cuttings of it were made, as I have often explained, stocks from them will never make a sucker above the collar, nor from the roots either, if strong growers like the *Banksians* are worked on them. *Laure Davoust*, and all the *Grecillii* or *Multiflora* roses, should also be on stocks of the *Felicite perpetuelle*, all of them being too tender in the roots for nine-tenths of our gardens.

For a long time it was the custom with many amateurs to prune *Banksian* roses at the same time as the rest of their stock, and of course they got no bloom worth speaking of; but now every one knows that the right time of pruning is just after the flowers are over, either by the end of May or early in June; also that very strong shoots ought to be stopped before they are a foot long, as gross wood of them seldom produces much bloom; and every bit of new growth after the

middle or end of August should be cut right out at the last looking over in the autumn. The nurserymen have three or four more kinds of Banksians, but I can say nothing about them, having never seen a leaf of them. Any one, however, who has a healthy plant of either the white or yellow, might very easily prove these newer ones by getting a small plant of each, and budding from them on some of the more healthy shoots of the old ones, and taking the precaution to bud towards the extremity of an old branch, and not pruning the new kind till it flowers.

Grevillii Roses.—These are called *Multiflora* in books. There are only two of them worth growing—the *Scarlet Greville* and the *Seven Sisters*. Of the two we prefer the *Sisters*. When it does well it is a very pretty rose indeed, but it requires a good, warm, dry autumn to bring it out well, and to ripen the wood. I have tried it more than once as a pillar rose, but never succeeded well with it: it must have a south wall to have it in perfection. The flowers come in large bunches, and after a time, as they go on fading, they assume so many tints, that some one counted seven distinct shades in one bunch, and called it the *Seven Sisters* rose on that account.

Laure Davoust, a most beautiful rose, is now classed with the *Multifloras*, but it has more of the blood of a hardy *Noisette*. Of all the climbing roses *Laure Davoust* is my own peculiar favourite; for many years one of it in the rosary at Shrubland, trained against an iron arch, used to be the most beautiful rose I ever saw, but the hard winter and spring two years ago almost killed it; and I am quite sure we must have it budded on one of the evergreen climbers before we make sure of it against such mishaps.

There is another class of climbing roses, called *Prairie* roses in America; but, like the old *Black Noisette* of American origin, they must go through some generations of special crossing before we can do much with them. The two best of them are the *Pride of Washington*, and *Queen of the Prairies*; both require a wall.

Macartney Roses.—The old double white *Macartney*, or *Cigar* rose, as we call it in the country, is the strongest and most evergreen rose we have. It grows to an enormous size where the soil suits it. My predecessor at Shrubland Park planted a full selection of all the climbing roses, and in thirteen years the *Cigar* rose has attained to double the strength of any one of them. The border for it is only thirty inches wide, and the depth nearly two feet, all cut out of the solid chalk; the length is considerable, and several other climbing roses are planted all along. The plants are trained against a sloping bank, such as I have more than once strongly recommended; the slope of the bank is about eight or nine feet, and on the top of it is a low wall of open ornamental stone work, forming one side of a terrace. When it rains, the whole that falls on the stone work, and on the slope, must glide down into the narrow border; and one might think that a few hours' rain would flood it, and render it useless for any gardening purpose. Not so, however; for I firmly believe that if it were to rain from December to October, the whole would pass away as fast as it entered—the chalk under it, and on both sides, being like an open sieve. I have stated all this in order to show that the *Cigar* rose, which has outstripped all others in strength, does so under peculiar circumstances.

Of all the roses, with the single exception of *Microphylla*, the *Macartney* has the most beautiful leaves. They are as glossy as the back of a raven, and they keep longer green than those of any other rose, yet I fear to recommend the plant to young beginners, for whom my notes are chiefly directed. It blooms in myriads, and down to the end of October, but not one out of ten thousand of them ever opens properly. The flowers are

pure white, and as double as they can be, and, if they would but open freely, the *Macartney* would be the best of all roses to plant against the south front of a house. I do not remember to have ever seen a fly on it, and that is a very high recommendation for any plant we desire to have trained against a house. The *Glycine sinensis*, the *Passion-flowers*, *Tacsonias*, and *Chimonanthus*, are the only other plants suitable for training against our dwellings, which occur to me at present, which are always free from insects. The *Jamaines* are generally as clean, but if they get stunted from want of water, or from very poor soil, the fly will take to them directly. When we shall get into the right way of using glass economically for different purposes in the garden—that is, without the Tom-foolery of patent laws—we shall have a glass front, or a glass roof, to bring out the beauties and sweetness of our *Tea-scented* roses, and tender climbing ones, and then none of them will pay us more freely than this *Macartney* or *Cigar* rose; and notwithstanding our aversion to the nasty smell of tobacco, I never heard even a lady say, that the smell of a cigar was disagreeable on a frosty day, if the smoker was a good way off, and that is exactly the smell of this rose. Who can say, if we were to get it to open well under a glass case, and dry the leaves as we do those of the sweet roses, that they would not come in for smoking instead of the best Havanna's, at any rate, I should consider the project a better subject for a patent than glass lights, alias glass walls!

There is a single white *Macartney* which, on a fine season, produces ripe pollen, and few roses promise better to cross, owing to its beautiful foliage, and flowering so late. For any other purpose the single one is not worth growing. *Maria Leonida* is a fine seedling of the *Macartney*, with white flowers, not quite so double as those of the *Cigar* rose, but they open quite freely, and the plant can be recommended for the sake of variety. It is, if any thing, less hardy than the old double one, and it does not attain one-fourth of its size or strength, at least in ten or a dozen years. It is well suited for planting against the south side of a low wall or sloping bank.

Rosa Microphylla, or the small-leaved rose, seems to have got almost out of cultivation, and that because we do not understand the right way of managing it. Its beautiful, small, shining leaves are the prettiest of all the roses, and the fly will not touch it. The flowers are as beautiful as any rose can be—a reddish pink, with lighter bottoms, and, when well managed, it blooms most profusely, and late in the autumn. I once heard an anecdote about one of our best rose-growers having seen a splendid plant of it in full bloom, against a wall at a little distance, and he mistook it for some new shrub, quite different from a rose. I saw the same plant in the dead of winter, without a leaf, and newly pruned, and I was as much at fault as the great rose-grower, although I had examined the rose with a determination to make out what it could be. That plant is in Suffolk, and is the only one of the sort I ever saw treated in the right way. If betting were respectable, I would lay a crown that, if Mr. Errington himself saw this plant next February, at a short distance, he would take it to be a trained mulberry, for that is the nearest tree that I can compare it to. It covered eighteen feet of an eight-foot-high wall, and was trained fan-fashion, the main branches being about ten inches apart. The rough old bark was peeled off every winter, and the spurs were very closely pruned. These spurs were as thickly set along the branches as I ever saw on an old-fashioned pear tree. I was told that every tuft of spurs produced from five to twelve flowering shoots every summer, and when the whole were in bloom it must have been a "sight" to see them. Now here is a much-neglected rose, although I am quite sure it

might be made one of the best plants to train against the south front of a house. South-east or south-west would also be equally eligible for it. I have often wished to recommend it to those of our correspondents who ask for fit subjects to train under a south veranda, but without a full description of what has been already done with it. I knew too well that if our friends were to ask for it in the out-lying nurseries, and say what they intended to do with it, they would be pooh-pooed out of countenance, because the plant has seldom been done justice to; but now that it has received the weight of *THE COTTAGE GARDENER* in its favour, I should not be surprised to hear that every saleable plant of it was cleared out of the nurseries next spring, for I have had ample opportunities to learn that every good thing which the different writers in these pages recommend on their own responsibility, finds a ready sale. Look at the stimulus which Mr. Appleby's papers on priced *Orchids* have already done to that delightful family. Look also at our lists of florist's flowers, and say if there is one buyer in a hundred who ventures to go to market without first taking a leaf out of our book? Well! but look also at the responsibility which all this entails on every one of us, and then say if it be such an easy matter, after all, to run up a long list of names on the spur of the moment—and think of this next time you write. D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

CAPE HEATHS.—(Continued from page 166.)

PROPAGATION BY CUTTINGS.—I have previously thrown out a warning to those who have only one small house, and who wish to have Heaths among their general collection, not because such culture *cannot* be combined, but because the *trouble* and *attention* are considerably increased; matters too often apt to be forgotten, until the crash of a failure comes. So, again, with respect to the propagating these plants from cuttings; I must candidly state, that those who can give no more continued attention to them, than they find it suitable to render to their soft-wooded plants, such as *Fuchsias* and *Geraniums*, would act wisely in getting young plants from the nurserymen, instead of attempting to raise them. In fact, in most cases, where the conveniences are not ample, and time and opportunities available—upon the mere principle of the division of labour—most of our readers could purchase nice little healthy plants cheaper than what they could rear them. The only drawback I can conceive is, that a man could not look upon a plant with exactly the same interest as he regards one that he has raised, as well as grown. It would not be right that that element of pleasure should be denied to one reader, who duly counting the cost, resolves to share in it. And for encouragement, I can safely say there is no manipulation connected with gardening that is more delightful.

Let us advert then, first, to the materials and compost, &c., necessary to be prepared for the reception of the cuttings. For the very free-growing kinds, such as *Well-morrii*, *Hyemalis*, &c., pots prepared as directed last week for seed sowing, will answer very well, *only* there must be at least half-an-inch of *pure* sand on the surface, and a pot prepared, of a size suitable for your bell-glass, as in almost every circumstance it will be advisable to have one of these glasses over every pot containing cuttings. But in the case of slower-growing kinds, such as *Hartwelli*, *Tricolor*, *Ampullacea*, &c., the same mode, unless with persons very experienced, will not answer so well, just because they take longer time to form roots, and there is a little difficulty in keeping them in a nice medium, as respects moisture, &c.; small

pots, unless plunged, being apt to become dry too soon; and in a larger pot, the centre cuttings are apt to damp off. To remedy these defects, it is found advisable to use a larger and lesser pot, the former supplied with drainage, so that the latter, when placed in it, will have its rim upon the same level as the larger one, while between the two rims there will be a space ranging from one-half to one inch. Both inner and outer pot are then filled with drainage, to within two inches, or two-inches-and-a-half of the surface, the drainage becoming smaller as it nears the surface; on this a little half-decayed moss is placed, and then from one to one-and-a-half inch of very sandy peat, the roughest at bottom, the finest at top, and then from one-half to one inch of sand. Here it is intended to place the cuttings chiefly round the inside of the inner pot, and to have the edges of the bell-glass set in the space between the inner and outer pot, which space is filled up similar to the pot inside, and terminated with the layer of sand, because it is the most cleanly-looking, and the glass is more easily raised and put down again, so as to be air tight, than upon any other substance I know. In very particular cases, and where success is a matter of great importance, we would use a *third* pot, namely, a small one turned topsy-turvy in the inside of the smaller one, the space between being filled up as detailed above. Whether, then, one or two rows of cuttings were inserted, neither of them could be far from the side of a pot—the best position for encouraging roots, as was mentioned some time ago. Now our friends will at once see, that in raising a number of kinds and using a number of pots, this double and triple pot system, so successful in solitary cases, would not be so essential, *did* the practicability exist of *plunging* these pots in a medium, that would be a security against the extremes of moisture and dryness, such as broken potsherds and charcoal, and a sprinkling of silver sand. Here, again, just as in the case of sowing seeds, the cuttings of different kinds, requiring as much difference in time in striking, some rooting in six weeks, and others scarcely doing so in six months, young beginners should keep each sort, or sorts very nearly allied to each other, separately, for which small pots will be in demand, and small glasses in consequence; but these latter will constitute no great difficulty to those households, especially, where the temperature movement has got a step even on the threshold, as plenty of narrow-mouthed, long tapering glasses may be found, that will answer the purpose *better* than the flat-headed bell-glasses, until lately so commonly used. Every glass, at least, that has had the misfortune to lose foot and leg, should be kept for this purpose—and a far better one than that to which, in days of yore, they were often applied in gardeners' lodges, when the friendly visitor used to have one of these footless glasses brimming full with fire-water. But, supposing that some have not any small glasses, but have bell-glasses ranging from six to eight inches in diameter, then the best plan is to obtain a pot, inside of which one of these glasses will stand; fill that pot as near to the top with drainage as will enable several small pots, such as small 60's or thumbs, to stand inside, their rims on a level with the large containing-pot, drain and fill them as if they were larger, and also the spaces between, but these latter chiefly with drainage, and fill each little pot with the same or similar species. When the pots are thus filled, let them be well-watered, or set in a tub, and in both cases allowed to drain thoroughly, and the surface to get a little dry before using them. I regret the space these small particulars take up; but small particulars here are most important, so much so, that before going further I must add a few words on sand and glasses, which will be of importance to beginners and purchasers. And

1st. *As to the Sand.*—For everything connected with Heath-culture, none is equal to the pure silver-sand used about London, obtained chiefly from Kent and Leighton, and Heath and Reach in Bedfordshire. The whiter and more sparkling its little crystals are, the better it is. The next best is pit-sand of a roddish or yellowish character, rather sharp to the feel, and free from iron and other impurities; the most of which can be separated from the sand by repeated washings in a tub, or pail, until the water comes off as clear, or nearly so, as when put on. The next best is obtained after heavy rains by the sides of roads, and by the sides of fresh-water rivers, both of which must be washed in the same manner as pit-sand. The disadvantage of these two latter sands is, that the individual parts are apt to be too large, and thus permit the air to penetrate too easily to the base of the cutting; but this can be remedied by *pounding* the sand when dry with a hammer, or with a pestle in a mortar. Let not any one be deterred in doing all this;—but little time is lost, and these little attentions will not afterwards be regretted.

2ndly. *In choosing glasses have nothing to do with the flat, broad, bonnet-headed shape*, but insist on those with a conical form, terminating at a knob at the point for holding by. The reasons are, that in the flat glasses the moisture condensed on the flat roof was apt to fall upon, and injure by the damp thus given, your most prized cuttings, and therefore, for many tender things, the man, who by means of carefully wiping dry the inside of his glasses every morning, and thus preventing the drip, was, all other things being equal, the most successful propagator. In the conical glasses, the moisture condensed against the sides trickled down them into the sand and soil from whence they came, and thus, not only was the cloth-wiping system almost entirely dispensed with, but attention to repeated waterings was reduced to its minimum. *Lately*, the superiority of such glasses has been discovered by some of our contemporaries. I forget, now, how many years ago it is since I publicly mentioned that fact, but I was by no means the first to use them. Some sixteen years ago, I was asking my late friend, Mr. Brown, of the Bedford Nursery, Hampstead-road (a man whose equal was seldom to be found for the vast stores of knowledge with which his mind was enriched), how he thought such glasses would answer, and, contrary to my expectation, he seemed very careless about it, but by and by, taking me into his propagating house, and telling me to keep my eyes open, sure enough, among scores of propagating glasses, there were a couple of dozen of conical ones, which he told me he had had for some time, being made to his plan and order, by a large glass house. In their praises, for saving labour and saving from injury, he was most eloquent. I obtained the first conical ones I used through his instrumentality, and, as yet, I am not aware that they had previously been used by any one before himself. As they can be obtained equally cheap, and as for every propagating purpose they are superior to the flat-headed fraternity, I shall consider the writing of this article *useless*, if our friends in purchasing should either *choose* or be *content* with the latter, instead of the former. I find from these preliminaries I could not now satisfactorily enter upon the making and treatment of cuttings to-day, but will conclude with a few remarks,

3rdly. *On the Soil necessary for Propagating and Growing Heaths.*—This would have been quite unnecessary if we gardeners had managed to be consistent enough to term such soil *heath-mould*, and not, as is frequently done, *bog*, or *peat-soil*. The latter term is generally used in this work, and also in the *Cottage Gardeners' Dictionary*, merely because it is so sanctioned by custom. Heath-soil and peat-soil, as used by gardeners, may therefore be deemed synonymous, though the burner of bog-peat would consider them very different. This latter sub-

stance is obtained from vegetable matter, decomposing under water, and, therefore, full of astringency. Our materials, whether dubbed *peat*, by conventionalism, or *heath-soil*, correctly, is that mixture of decaying rock, and decomposing vegetable matter, found on high grounds where no water rests, such as where our native Heaths flourish: this is generally sweet, instead of astringent. After removing the rough surface, it is best when not dug deeper than from two to four inches; though the more decomposed layers are the best for propagating, and the fresher and more fibry are the best for large shifts. If of medium good quality, it may be used fresh from the hill, as well as when it is carefully aired for years. In most matters the long preparing and frequent turnings in the year of all composts is getting to a discount. For propagating, this heath-soil should have nearly an equal portion of sand.

R. FISH.

HOTHOUSE DEPARTMENT.

EXOTIC ORCHIDACEÆ.

PLANTS THAT THRIVE WELL IN POTS (*Continued from page 150*).

WARREA BIDENTATA (Twice-toothed W.); Caraccas.—Sepals and petals white; lip, purple, edged with white. The flowers are produced on tall spikes, springing from the base of the pseudo-bulbs. A very fine species. 31s. 6d.

W. CYANEA (Blue-lipped W.); Columbia.—Sepals and petals white; lip, a most dense blue; there is no flower in the whole range of the vegetable kingdom that exhibits so dense and deep a blue as the lip of this charming flower. 42s.

W. LINDENIANA (Linden's W.); New Grenada and Peru.—Sepals and petals cream-coloured; lip, reddish crimson, round in front and hollowed in the centre. Flowers numerous, produced on stems two feet high. A handsome new species, flowered, for the first time in this country, at Messrs. Henderson's, of Pine Apple Place; a desirable species. 63s.

W. TRICOLOR (Three-coloured W.); Brazil.—Sepals and petals delicate clear white; the lip white, with a line of yellow round a purple spot in the centre; hence its specific name, three-coloured. A handsome plant, producing its flowers in winter. 21s.

Culture.—The genus *Warrea* was formerly included in *Maxillaria*, but is now very properly separated from that incongruous genus; at least it was so before it was divided. Warreas are what are denominated terrestrial (growing on the ground) orchids, though they are sometimes found growing in the low clefts of trees and crevices of rocks in the vegetable soil, formed by decaying leaves and dead twigs of trees. The roots are long and fleshy, as thick as a goose-quill, running through the light open vegetable soil, and penetrating into the strong loam. In such situations they grow surprisingly strong, forming pseudo-bulbs from six inches to nine inches long. Such, at least, are the bulbs that are imported into this country, and with due attention, and using such means as nature has provided for them in their native wilds, we may grow them quite as well, if not superior. The soil, or compost, we use, is composed of strong turfy loam, fibrous peat, and half-decayed leaves, in equal parts, adding a small portion of very much decayed dung, and a small mixture of boiled bones, broken into pieces about the size of a hen's egg, or less; mix these all together at the time of potting.

Season for Potting.—If the resting season, of which we shall write by and by, has been judiciously managed, the season of potting will take place in February. Place the compost in some place to be warmed previously to using it; have ready, also, a sufficient quantity of broken

pots for drainage; then bring the plants out into the potting-shed, taking care to expose them as little as possible to the cold; turn them out of the pots, and shake off gently all the old soil. Take this opportunity to cleanse them thoroughly from insects, dirt, dead leaves and roots, but be careful not to injure the living roots. Drain the new pots well, covering the drainage with a thin layer of moss, to keep it open, by preventing the soil from being washed down amongst, and so choking up the drainage. Then put in the pot a thin layer of the compost; and after that place the plant in, hold it up with one hand, and arrange the roots equally, working in the compost amongst them, gradually bringing it up to the level of the rim of the pot; finish there, for these plants do not require to be raised higher. As soon as they are potted, bring them into the house, set them on the path, and give a good watering to settle the soil to the roots. Syringe the leaves, also, to wash off any dust or dirt that may be upon them. As soon as the water has drained off, place the plants upon the stage. They will not require watering again for a month; after which time the new shoots and roots will have begun to push forth; water will then be required regularly all the summer; and when the foliage is approaching the full size, the plants will flourish best if a large and liberal supply of water be given. Indeed, at that particular time if the water be mixed with liquid manure-water to the extent of one gallon to three of water, the plants will thrive all the better for it. In bright sunny weather let the plants be well shaded from the sun, and have plenty of air. As they are natives of the warmer parts of the South American continent, they require a higher temperature whilst growing; the cooler end of the Indian-house will be a good situation for them. During very hot weather the syringe may be used freely night and morning; but in cool weather, while the plants are at rest, the syringing must be dispensed with.

When the summer growth is fully perfected, the water must be greatly reduced, but never wholly withheld. The leaves of these plants are something like the old *Bletia Tankervillea*, and, therefore, perspire a considerable quantity of moisture, even through the dark days of winter, thus rendering it necessary to water them occasionally all the year. It must, however, be given, when the plants are at rest, in quantities only sufficient to prevent them from flagging. The heat, too, must be considerably reduced. Heat in summer, or the season of growth, 75° by day, and 65° by night; in winter, or the season of rest, 60° by day, and 55° by night.

In all this there is a great similarity of treatment to several other genera of orchids, which is so far well, as the operator or manager may so order the season of rest to such, as to enable him to bring them all under the same roof and regimen.

T. APPELBY.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS.

THE CINERARIA.

The "Properties of Flowers" is a work which offended many old florists, but which has fought its way up until it is the received standard for general censorship; not because it is a sort of dogmatic monitor which has found friends among raisers of flowers, but because it is founded on principles which carry with them that which may occasionally be led, but which cannot be driven, PUBLIC OPINION. Let us take any one flower as a test. We will begin with *The Cineraria*, a flower which, when the book was written, had a daisy-like form, with few petals, disposed star-like, with sharp points, plenty of vacancy between them, and, though of many and pretty

colours, very mean and paltry. However the florists may have sneered at the notions, the following were the requisites laid down in the book:—

"1. The petals should be thick, broad, blunt, and smooth at the ends, closely set, and form a circle without much indentation.

"2. The centre or yellow disk should be less than one-third of the diameter of the whole flower: in other words, the coloured circle formed by the petals should be wider all round than the disk measures across.

"3. The colour should be brilliant, whether shaded or self, or if it be a white, it should be very pure.

"4. The trusses of flower should be large, close, and even on the surface, the individual flowers standing together with their edges touching each other, however numerous they may be.

"5. The plant should be dwarf.

"6. The stems strong, and not longer than the width across the foliage; in other words, from the upper surface of the truss of flower to the leaves where the stem starts from, should not be a greater distance than from one side of the foliage to the other."

In these remarks we allude to the plant when in perfection, for, as the *Cineraria* is a constant bloomer, it continues to branch and bloom long after its proper truss has lost its chief beauty, and its form; the blooms are then more distant and straggling, but still beautiful, for every little branching truss of flowers will preserve the character of the principal one, and the plant look well to the last.

It was quite amusement for what we call plantsmen, to ridicule the notion that this star-like flower should become round, but we knew well that the broader the petals became, the closer they must be together, and that when they became broad enough they must form a close circle, and if the ends became obtuse they might become perfect. We knew the difficulty, and the time it would take to produce this desirable form, supposing it to be achieved at all; but we knew also that the broader the petals became, the richer the flower would be, not in the eye of the florist, for we never studied their extraordinary notions, but to the common observer, whose taste we did study, and the time has arrived when many varieties make a respectable approach to a circular outline. Petals should be thick, because they last longer. They should be smooth in the outline, because they are more agreeable to the eye. The yellow disk should be small, because it is the least brilliant part of the flower. The colour should be brilliant, because they are more striking, and are seen further off. The trusses should be large, because the more flower there is and the less foliage, the more gorgeous a flower looks, and there can be no question as to the general advantage of dwarf plants. In fact, there can be good reasons shown why the especial peculiarities laid down in "The Properties of Flowers" are the best for universal adoption. The most ignorant persons who love plants will prefer things in proportion as they reach the standard laid down.

The Society for the Promotion of Floriculture in Great Britain has determined that instead of branch associations, they will adopt a locality, so that the whole strength may be concentrated in one place, and meetings are to be held with a view to determine where that place shall be. The trifling nature of the subscription seems to deter some of those who love exclusiveness from joining it. The subscription of one shilling per annum, always found sufficient for these purposes, admits florists of the most humble pretensions, but often of great talent in their way; and there is an aristocracy in even floriculture which is detrimental to the science, because they would like the humble but successful raisers of seedlings to submit their pretensions to the monied followers of the science. But, and we say this advisedly, the public may rely most safely on

men of floricultural experience and talent, instead of societies of dealers, whose interest is diametrically opposed to that of the public.

NEW FRENCH CHRYSANTHEMUMS (A. B).—We have already noticed the only two worth attention of the number now received. Rainbow, which will be sent out with three different names, French, English, and Italian, is the best.

X.—We cannot help wishing that all persons who want opinions on perishable things would send their packets to 2, Amen Corner, and write outside "Flowers for opinion." They will be sent to us immediately, wherever we are. Then, X's Chrysanthemum blooms would not have perished before we could see them.

W. O. S.—*Pansy blooms* now are no index of the real flower. The odd character of all three now sent is not permanent. W. O. S. will not know them again in the spring of the year.

FLORISTS' FLOWERS CULTURE.

THE PINK. GENERAL MANAGEMENT, (concluded from page 167.)

The Blooming.—This most interesting period, looked for by the cultivator with no small anxiety, and provided for in the hope of a successful issue, by numberless cares and incessant superintendence, will be fast approaching about the middle and latter end of May and the beginning of June. As the flower-stems advance in altitude, sticks will be required to support the blooms. It is very needful to place them to the plants for that purpose before the flowers open, because, if delayed till that takes place, a heavy fall of rain might break them off, or bend them down so much that there would be equal danger of breakage in trying to bring them to an upright position. The best kind of sticks are those made from double laths, split into the required thickness, made round and smooth with a sharp knife. From 15 to 18 inches will be a proper length. After they are made, give them a coat of lead-coloured paint, and when that is dry, a second coating of light green, approaching as nearly as possible to the colour of the stems of the plants. This making of the sticks and painting them will, of necessity, take up some time, and they should, therefore, be prepared some time beforehand. The making of them would be a pleasant employment for the winter evenings. When the flower-stems have advanced to six or nine inches in length, proceed without delay to place the sticks and tie the stems to them. Be careful in thrusting in the sticks not to injure the roots. If any of the stems are uncommonly vigorous, let them have the longest sticks. The best article to tie them down with is some soft new Russia mats, obtained from the bark of the lime tree in that country. There has been of late years a kind of matting introduced from Cuba, which is very excellent for this purpose, but it is much more expensive. Amateurs, who do not mind the expense, will find this an excellent article—it may be procured of any respectable London tradesman or nurseryman. The Russia mats are, however, very good, and may be more easily obtained. In tying the stems great care must be exercised; if tied tight it prevents the stem from elongating, and it then bends outwards and forms what is called knees, which, if not immediately relieved by loosening the string, will snap off at the joint, and of course destroy the bloom on such stems. To prevent the occurrence of this misfortune it is prudent to tie loosely at first. The string should be tied tightly round the stick and then brought round the flower-stem, and tied so as to leave room for it to expand, without any danger of forming knees or crooked joints. This tying will require to be often repeated to keep the stems perfectly straight and upright. When they have attained

their full growth, which happens when the flower buds have become large and full, the ties may be tightened, and there is then no danger of breaking.

Thinning the buds.—In order to have large, full flowers, it is necessary to reduce their number. If the stem is weak, one flower will be as many as it will bring to perfection, but if strong, two, or sometimes three, may be allowed to bloom. In taking off the extra buds, be careful not to crack or injure the stem, a little practice will soon enable the new beginner to do this dexterously and safely. The next point to attend to is to place something round each bud, to prevent them from bursting on one side, or irregularly. Very small Indian rubber rings are the very best articles for this purpose, for a reason easily understood, they readily expand as the bud swells, and yet are tight enough to answer the purpose of preventing the buds from bursting. If, notwithstanding these rings, whether of Indian rubber or any other material, the buds should still shew inclination to open on one side, then take a pair of sharp-pointed scissors, and cut open the calyx or flower-cup on the opposite side to where the bursting is likely to take place. This tying the buds is an important point, if good, well-shaped flowers are desirable. It should be done, like most other operations, in an early stage of the bloom, and the ring or tie should be fixed nearly in the middle of the bud. If it be lower, it will not prevent the bursting, and if above, the bud will swell out below it, and then form a monstrous mis-shapen flower. Supposing that every point of culture has been duly and properly attended to, and rightly performed, the flowers will begin to expand, shewing the beauties of the opening bloom. Then a fear will be felt by the anxious florist, that the consummation of his hopes may yet be frustrated by glaring sunshine, stormy winds, or beating rain. Shelters from these flower despoilers will then be in requisition. The most effectual protection is oiled canvass covers stretched over the whole bed, upon a frame of hoops and rods. If this mode should be considered too expensive, caps of the same material, nine inches diameter, kept expanded by a frame of wire, will answer almost equally as well. Thrust in near to the flowers a strong stick, just low enough to be above the flower. These shelters may be fastened to the stake by a socket on one side of the cap, wedged firmly to keep it fast in its place. These being placed in due time over the flowers, everything has been done by the careful, attentive florist to ensure success. T. APPELBY.

THE KITCHEN-GARDEN.

BRUSSELS SPROUTS.—As THE COTTAGE GARDENER is read by those having many natural difficulties to contend with, as well as by those enjoying a more favoured clime, we will make this useful vegetable the subject of our especial notice; and though it may not, in all cases, form so suitable an accompaniment to the other good things sent to table as fine White Brocoli, which, under favourable circumstances, may be obtained in tolerable good succession, yet the fact of its being at all times in a state fit for use, has established for it a character for universal utility. In those districts where the severity of the winter and other things tend to check the growth, if not entirely to kill, the more tender kinds of Brocoli and other things, it is necessary to plant a much larger proportion of this and other hardy vegetables than is done in more southern latitudes; and as we have in our younger days had considerable experience in situations not much favoured by nature, we remember it to be customary there to plant as large a breadth of *Brussels Sprouts* as we did of the whole class of Brocoli together; and though some of our London and southern counties' friends may think

this out of all proportion, we will tell them we always found the Brussels Sprouts to be the most useful portion of our winter produce. In such situations it is absolutely necessary to get them as early as possible; for that purpose *sow* under a south wall or vine border, or it might be under glass, as early in the spring as there is any chance of trusting seed in the ground, with a probability of its growing; and we have seen Brussels Sprouts, Curled Kale, and Savoys, all sown in the August of the preceding year without their running to seed—so much for the difference of climate and other things. And to those who feel afraid of trying this early system, we may say, that if the young plants do not run to seed in the June following, they are not likely to do so at any later period of the summer; and it must be remembered that June in such places answers to May in others. It may be tolerably well known before they are planted out what prospect there is of their standing; we may add that the quality of the seed has a considerable influence that way, originating as they did in a class of plants properly annuals; it has been only by successful cultivation that a biennial constitution has been given them, and their disposition to revert to the original is often seen in those specimens we are accustomed to call *bastards*; but independent of those spurious plants we have in old seed a greater tendency to hasten the performance of those duties nature intended it to perform, which is, "to ripen and scatter its seeds for a future progeny." It is in accordance with this law that Balsam growers prefer old seed to new, the latter having a greater disposition to grow than flower, which disposition is necessary in the vegetable.

A piece of ground open and made pretty rich suits Brussels Sprouts, and they ought never to be less than two feet apart each way; we need hardly add that frequent stirring of the ground is necessary to insure successful culture, which, however, must cease when the plants cannot be got amongst without breaking their leaves. Occasional waterings with liquid manure will be of service; but, in a general way, if other things be favourable, they get large enough without such assistance; and we have sometimes seen them assume a gross open habit, which we accounted for partly to the stimulants employed, as well as to the imperfect nature of the seeds. After they have become fairly established they require but little after-assistance; and the habit we have seen some adopt of breaking off a great part of the leaves in autumn, in order to promote the growth of sprouts, is decidedly bad, being at variance with every recognised law of nature; and we may add we have proved it to be so, by pulling off the leaves from a part of the plants and leaving others untouched. The latter were much finer a month afterwards, and all the winter.

In cutting the sprouts, leave as much of the stalk as possible, as the next crop proceeds from the base of it. We need hardly add that in late places the plants ought to exhibit a fulness early in autumn, otherwise they will not be good that season. In favoured places, where growth scarcely ceases all winter, this need not be insisted on; but where the bleak, chilly atmosphere, cold soil, and other things stop their progress, independent of the rigours of winter, it is advisable that they mature their growth in time. While, on the other hand, we have seen some of which the principal growth took place after the first of October; and even the present season, in which we have had an early winter, we saw some excellent Brussels Sprouts lately, which, at the time above-mentioned, hardly showed what they were. It is only in very severe winters that this vegetable is hurt by the frost—the memorable one of 1827 and 1838 for instance; but when this vegetable suffers, the damage to other things is woeful.

SUNDRIES.—The changeable weather common at this season renders it advisable to take care of *Cauliflower plants* under protection, but they must not be entirely covered up; in fact, the less they are so the better, provided they are secured on very frosty days and nights, but on all other occasions let them be fully exposed. But as we have been speaking of those inclement situations, common in the north, we may add that *Cabbage plants* require nearly, if not quite, as much protection there, as Cauliflowers do in the south; and a very severe winter is equally fatal to them. We, therefore, urge on our readers the propriety of preserving such valuable crops, and all available protecting materials should be at once put in operation; and things homely, and even untidy, will present themselves as useful at a time when appearances are really of less moment than the future utility of the crop saved; and, in such places, pits covered with wooden shutters ought to be erected, to contain a mass of *Broccoli*, &c., which it is indispensable to house at this season; glass, doubtless, would be better, but the former will do. These ought to be taken up some dry day with balls, and be removed to this place of safety. It is hardly necessary to say that a certain amount of size is sacrificed were the season mild enough to allow them to be fully developed in the place they had been growing; yet the probabilities are, that no good whatever might be had of those expected to come in use in winter, pleads powerfully the use of some protection for them at that inclement season. The same care and attention to *Cucumbers*, *French Beans*, and other things under forcing, recommended in former Calendars, is still necessary, and the general direction as to suiting the necessary work of the season to the weather is equally applicable now as before.

J. R.

MISCELLANEOUS INFORMATION.

OUR VILLAGERS.

By the Authoress of "My Flowers," &c.

A CONTENTED mind is a blessing to its possessor, so much so, that next to the fear and love of God, it is most to be desired. It *always* accompanies godliness; a discontented Christian—I mean a real, *vital* Christian—cannot be. No man who *fully* puts his trust in the Lord can be discontented, because he knows and feels that the Hand which leads and works for him does all things *well*; and he would rather have God's will performed towards him than his own. His heart's confession is, "It is the Lord: let Him do what seemeth Him good."

William Hopkins is the most quiet, inoffensive old man possible. He is, I believe, so far as man can see into the heart, a sincere Christian, and he is quite a fit person to sit

for the picture of contentment. He is old, but his bodily infirmities are beyond his age, and he is unable to do more than just creep about, go on little errands, and pick up sticks. He has been for many years suffering extreme privations, in fact his small parish allowance was not enough to obtain sufficient food, and pay his rent; and had he not had the precarious earnings of his daughter to look to, he must long ago have been an inmate of the dreaded Union Workhouse. He, and his daughter, and his grand-child, were obliged, at one time, to occupy a cottage with another old woman, whose very face prepossessed people against her, and this was a great trial to poor old Hopkins, because he was a man of peaceable habits, and could not bear unholy

language and behaviour. On being questioned as to the conduct of this woman, he meekly said, "her ways are not my ways;" and he quietly awaited deliverance when the God whom he trusted should see fit. It came. A small cottage belonging to a neighbouring family was vacant, and he and his daughter were put into it rent free, to look after the untenanted house and garden to which it was attached. This was a special blessing to poor old Hopkins, and he remained for some years on the same spot, suffering many trials and wants, but in the midst of them all enjoying great consolations. He was speaking one day of his poverty, and the view he took of it was at once striking and affecting; "The Lord knows my heart," he said, "better than I know it myself. He knows that I am not fit to be trusted with riches;" and in this humble, self-condemning spirit he justified the Lord's dealings with him, and was still. What a lesson to all who may be disposed to murmur at their state of life!

When the house was let to which the cottage belonged, there was a poor prospect for the old man, because the new tenants wished for their own people to be near them, and he must therefore give up his little quiet home. At one time the Union stared him in the face, and here his heart failed him, for he had a strong repugnance to giving up his liberty, and submitting to restraint, however wholesome, in his latter days. But he trusted with simple confidence to an Arm that never fails, that ever bringeth salvation; and that Arm protected him. His daughter, an honest, hard-working creature, had been for a long time employed as laundress in a common way, by a neighbouring family, and at this time of difficulty, it was proposed to them to occupy two rooms over some outhouses, where they might, at any rate, live peacefully and rent free. The gladness of the poor old man was great at escaping from the dreaded Union, and he was soon quietly established in his new dwelling. Nothing could be more peaceful, and patient, and thankful, than poor old Hopkins in his lowly home. It screened him from the weather, and brought him into immediate contact with friends who could help him in sickness and sorrow, and do him little offices of kindness when opportunities occurred. It was really a haven of rest to the old man, after many buffetings.

Not very long after he had settled himself a severe affliction fell upon him. His daughter, after a week's illness, died, and left him a real mourner, with the charge of a little girl, a heavy charge for a poor, old, crippled man. At first this blow almost stunned him, but the upward gaze of faith supported him, and he looked for help where it is ever to be found. His little granddaughter met with a situation in a tradesman's family, who treat her as a daughter, and with whom she is doing well, and the peaceful days of old Hopkins, in his little solitary chamber, are untroubled by any fear or anxiety on her account. He sits by his fireside in perfect peace, with the Book of Books open before him. Very seldom does any one break the silence of his life, but he says he does not know what it is to be lonely; he has no fear; he has One with him by day and by night who cheers his solitude, to whom he can tell his wants and wishes, who gives him all things that are good for him, preserves him from every danger, keeps him in perfect peace, visits him in the night season, and sweetens every pain. With such a friend, Hopkins is as rich a man as any in the land, and many a coronetted brow may envy the unbroken rest he finds on his hard pillow. He keeps his little room clean and in order; there is no one to make a litter and put him out of his way; he spends much of his time in the open air sweeping up leaves, and doing a few light jobs about the house, and in the evening the little white column of smoke that rises from his chimney speaks of a calm and cheerful evening hour. There he sits in a red woollen cap, and a rushlight on the table, but he can discourse upon things of wondrous import, and *science* may take a lesson from his lips.

At this solemn period of the year, when we are again drawing near to the day on which the Son of God came "to save his people from their sins," let us hear what an aged Christian can say about "the things that belong unto our peace." He can tell us that great is the faithfulness of the Lord, and the peace of him that keep his laws. He can tell us that "the Lord knoweth the days of the upright, and their inheritance shall be for ever." He can tell us that

Jesus Christ is "the bread of life: he that cometh unto him shall never hunger, and he that believeth in him shall never thirst." He can tell us that this same Jesus "hath an unchangeable priesthood, wherefore he is able also to save them to the uttermost that come unto God by him, seeing he ever liveth to make intercession for them."

Let us listen to the teaching of a humble servant of God, and follow his steps. We may never live to commemorate another nativity of Christ. Let the song of Angels echo through our hearts, and let us receive into our inmost souls the "good tidings of great joy which shall be to all people." Let us keep Christmas like *Christians*, and not with vain and idle mirth. Let it be to us all a time of spiritual joy and solemn thought.

BRITISH FUNGI.

No plants are so numerous, and none more interesting than the Fungi. In our British Flora they form by far the largest Natural Order, containing not only what are known as *Truffles*, *Mushrooms*, and *Toadstools*, but also in the lower groups what are termed *Mouldiness*, *Mildew*, *Smut*, *Rust*, *Blight*, and *Dry-rot*. Many are so minute as to be quite invisible to the naked eye, while others attain dimensions which in tropical climates have been taken at first sight for crouching lions. So prolific are they, that one individual of *Reticularia maxima* will produce 50,000,000, or more, spores (seeds); and so minute are the spores in some species as to be invisible to the naked eye, and so light as to float in the air like thin smoke. In subterranean species they (the spores) spread equally freely by being conveyed with the water that drains through the earth; therefore their abundance and rapid dispersion are easily accounted for. Of their geographical distribution we know but little at present; and in extra-tropical countries they are so numerous that we cannot safely form an idea of the number that really exist.

To the admirer of nature no plants are more interesting, nor can many rival them in beauty; flourishing, as they do, when the gay flowers of summer have ceased to bloom, and dead leaves alone bestrew our pathway,—they then become a herald of approaching winter, which to the botanist is a second summer, for then our Cryptogamic plants are in perfection,—then it is that fungi surround us on all sides, forming objects truly worthy of our admiration, dazzling our eyes with their lovely hues (found, as they are, of every colour except pure green) and varied forms. Nor are their odours less variable, some being of a most offensive, others of a most delicate, perfume.

Fungi thrive and produce their colours as well in darkness as in light, which is not the case with many other plants. In mines and caves, far from the light of day, many vegetate, covering the roof and walls, and producing a beautiful phosphorescent light, giving the beholder an idea of an enchanted castle. Beautiful and highly interesting as are the objects of which this order is composed, it has of late years been less studied in this country, with one or two exceptions, than any other branch of Cryptogamic plants. This neglect has, in a great measure, originated from the idea too prevalent, that it is almost (if not quite) impossible to dry and preserve them in a herbarium with other plants. This, however, is by no means the case, as many may, with a little care and practice, be dried (according to the plan adopted more especially for them, which is briefly explained in vol. v., part 2 of the English Flora) as readily as other Cryptogamic plants; and experience will soon show beginners that they will produce specimens far more faithful than was ever anticipated.

Fungi are important as man's greatest friends and enemies, and are most worthy of our consideration under the following heads, namely—as scavengers of nature, decomposing and removing refuse matters, which, if allowed to remain on the surface of the earth, would be found useless incumbrances and injurious tenants.

As parasites, they are destructive to the animals or plants on which they grow; as poisons, to the careless and inexperienced; as valuable remedies to the medical profession; and as food—supplying nearly the only nourishment, for a limited period, to thousands, and especially to the people of Russia. That the public, therefore, would derive much

benefit by having a sufficient knowledge of fungi to enable them to seek the good, and avoid the bad, no doubt can exist.

In the higher groups they are found principally growing upon decaying animal or vegetable substances, or upon soil arising from their decomposition. These they rapidly destroy, and speedily remove, thus rendering what was useless to itself useful to its survivors.

See dying vegetables life sustain;
See life dissolving vegetate again;
All forms that perish other forms supply;
By turns we catch the vital breath and die.

As parasites in the lower groups, they are found growing on the living bodies of both animals and vegetables, and their injurious effects to corn are by many unhappily too well known. In the form of Mouldiness, called by gardeners *damp*, they are very injurious in greenhouses, flourishing in a damp cold temperature, but they may be considerably checked in their growth by keeping the air in houses hot and damp, or cold and dry.

Uredo fiefida (Cankerbrand) and *U. segetum* (Smut) are amongst the parasitical fungi so injurious to our corn. Lime-water, and a brine of common salt, each have been recommended for keeping seed corn in, as it is supposed that either destroys the vitality of the spores (seeds) of both of the above fungi. Fields also should be dressed with lime and salt where a crop has been affected by the same. *Spermodia clavus* (Ergot of Rye), is another fungus which, though one of the most valuable remedies of our modern Pharmacopœia, produces a dreadful disease when abundant on corn of which bread is made; and may be considered a dangerous poison.

Subterranean fungi are also very injurious to our crops, the progress of which may sometimes be checked by deeply trenching the ground affected. *Merulius lachrymans* (Dry-rot) is also very injurious to wooden structures; the best preventive is to keep timber dry, with free ventilation of air, for four or five years previous to using, to which some add, saturate with a strong solution of corrosive sublimate; the prudence of the latter plan, however, I consider doubtful, and it is worthy of inquiry whether some other substance might not be equally efficacious, and the use of so dangerous a poison be avoided. Upon a small scale, white of egg is supposed to be equally efficacious in preventing the growth of minute fungi. To the above may be added many others too numerous to mention, which prey upon our books and provisions, and are otherwise injurious. Cheese, however, is sometimes improved by their presence; and it may be interesting here to state, that mouldiness which so frequently attacks provisions and books, may be effectually prevented by the use of essential oils, or any other perfume.—F. Y. BROCAS.

(To be continued.)

TO CORRESPONDENTS.

*. We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of The Cottage Gardener, 3, Amen Corner, Paternoster Row, London."

COW CABBAGES (Enquirer).—You will be as gratified as we are at receiving the following, for it is an important piece of information:—"In your 166th number, you state to your correspondent, 'that it would be useless to transplant these from the seed-bed now, to retard them for planting out in May or June; they would only run up to seed next year.' For your information, from my too-forward seed-bed last December, I planted, contrary to the advice both of my gardener and farming man, some 2,000 on the ground where they were to stand the summer, and I am now eating the crop, the bulk of which weigh from 25 to 30 lbs. each, and there were not more than a dozen plants run to seed."—Charles Norris, Wood Hall, Yorkshire.

AZALEA INDICA IN A WINDOW (M. G. C.).—These will bloom in spring if the flower-buds are set, which you may now know by their plumpness, and feeling firm at the point. You had better give no manure water, however weak, until after the new year begins, and the buds are more advanced. You must not think of repotting them until after blooming—that is, presuming they will do so, nor in any case until spring or summer. Give air when you can, and read what Mr. Fish and others said about keeping plants in rooms last year.

HYACINTHS IN BOWLS AND GLASSES (Ibid.).—Those in glasses must have the water changed at least twice a-week; put a few pieces of charcoal in the water. If you put a number of these and other sorts of bulbs now, you may have regular successions until they come in the open air. You would see the mode of doing all this stated lately. We do not think of any kind of seeds that in your circumstances it would be worth while to sow now for window display.

DURATION OF HOTBED (M. N. O.).—"If a hotbed of dung, large

enough to support a two-light box, be made about the middle of February, how long will it retain sufficient heat—without the process of lining—for the purpose of propagating greenhouse and bedding-out plants, and raising tender annuals?" An important question, but the answer depending greatly on the depth of the bed, the state of the dung, and the judgment of the builder. With a bed two feet deep, and dung not too rank, nor yet too decomposed and close—for then the heating would soon be over—nicely built, and mixed with some loose prunings, or other matter, to keep the interior open, and the bed all round fully a foot wider than the frame, you will find as much heat as necessary for the best part of three months, to suit the plants you mention, and then turning the bed, and placing a few barrowsful of fresher dung below, would give you heat enough for any thing during summer.

PLANTS IN A NORTH-EAST WINDOW (Inquirer).—We are sorry we cannot assist you, none of the plants you mention can be grown in such a room, unless close to the window-sill. This is your only hope for *Heliotropes* and *Cinerarias*—the window-sill, and a table or stage two or three feet back from it. Of the others, *Geraniums* of the scarlet kinds, *Fuchsias*, *Cacti*, *Salsias*, if large plants cut down, *Oleanders*, and *Agapanthus*, may all be kept in such a room for summer display elsewhere; but you must not attempt to grow them, and the colder they are, just free from frost, and the drier they are, just not to be quite dry, the better they will be. You must not mind their dismal yellow-like look now.

FILLING BLANKS ON KITCHEN-GARDEN WALLS (Ibid.).—Fill up the walls where you have now Peaches and Nectarines with the same; and for this purpose I would move the Nectarine, where it stands in the end wall by itself, and add it to the others; but if variety is an object, instead of having the long wall all Nectarines and Peaches, have two trees of *Moorpark Apricot*. The place from whence the Nectarine was taken fill up with a *Coe's Golden Drop Plum*, or a *Marie Louise Pear*; and on your other wall remove the two apples, and fill it entirely with *Cherries*; the most westerly aspect with *Elton* and *Circassians*, and the most northerly with *Morello*. It is always an advantage to have the same trees together. The direction in which your garden points is not in our opinion a desirable one. If you preferred Pears to Cherries, most of the best French kinds would flourish on such a wall.

GREENHOUSE (C. A.).—Yours has a western aspect, is 18 feet by 14, is not to be heated, and you ask what to grow in it in winter, and whether *Camellias* and *Tou-scented Roses* will? Undoubtedly; and yet we feel sorry that an occasional, not a perpetual, fire during winter, is found such a trouble and annoyance. If you merely wish to keep the plants, then, unless in very severe weather, when a little protection would be necessary, you would succeed admirably; but if you expected the plants to open and delight you with their bloom in winter, then both frosty and dull weather would be a greater annoyance than the fire has been. What more annoying than to see a fine bud refusing to open, or nipped just as it is expanding its beauties? Yet you cannot help yourself, because the frost has gone forth, that a fire shall not be made. Some time ago, lists of the hardiest greenhouse plants were given for such a house, and the means of protecting them by a covering inside in very severe weather. If you packed your roses in moss, &c., they would want no covering whatever, and would make fine specimens in early summer; but if you should consider all covering as great an annoyance as the firing, the best thing for depending on for ornament in winter, would be the hardiest and early flowering *Heaths*; such shrubs as *Laurustinus*, and such plants as *Wall Flowers*. We will, however, think the matter over; but really we advise you to resolve to have a fire now and then.

BAD GRAVEL WALKS.—One who appreciates The Cottage Gardener says:—"We have a garden walk of some extent, on a sandy bottom; in the summer it was topped with about an inch of fine gravel, which had been too long dry before it was put down, from which, or some other cause, it has never bound, and sadly retains the wet and damp." You should remove the coat of sand altogether, but concrete cannot stand if made now; the middle of March will be early enough to begin to make concrete. The old gravel will do all you want, up to the very last coat, which need not be thicker than the eighth-of-an-inch.

PIT (Ibid.).—Twelve feet by six is a good size for a three-light pit; and your gardener will soon get reconciled to the angle you propose, by the back being three feet high, and the front two feet, for it is a very good one. If you can get the rough plate glass, use it in preference to sheet; but there is some difficulty in getting it true. Six inches wide, and about eight inches long, are good proportions for pit glass. *Jasne Desprez* requires very little pruning indeed; it, and all tender roses, should be pruned either at the end of October or at the end of March. Before the frost sets in, and after it is over, are the true seasons for cutting tender trees of all sorts, as well as tender roses.

HARDY FRUIT (J. S., Newcastle-on-Tyne).—*Kitchen Apples*: Manks' Codling, Dumelow's Seedling, John Apple. *Dessert Apples*: Kerry Pippin, Golden Reinette, Pitmaston Nonpareil, Pearson's Plate, Lamb Abbey Pearmain, Sturmer Pippin, Hicks' Fancy, Red Margaret, Boston Russet. *Pears* (dwarf standards): Jargonelle, Louis Bonne of Jersey, Beurré diel, William's bon Chretienne, Beurre d'Amanlis, Glout Morceau, Hacon's Incomparable. *Plums*: Wilmot's Orleans, Royal Hâtive, Rivers' Favourite, Reine Claude Violette, Golden Drop. *Cherries*: May Duke, Black Eagle, Royal Duke, Elton. *Red Currants*: The Houghton Castle, or Baby Castle, or Goliah, all the same; the May's Victoria we do not know. *Black Currant*: The Black Grape; and *White Dutch Raspberries*: White Antwerp and Pastoff. *Strauberreries*: Black Prince, Keen's Seedling, British Queen, and Elton. *Stocks*: The Apples on Paradise, Pears on Quince, the others on ordinary stocks. Let us advise you to procure and practice the advice on platforms in our back numbers—planting entirely above the ground level—for we know the Newcastle climate well. We confidently urge this advice.

RASPBERRIES FAILING (G. H. Fastoff, Hull).—Have you any moss or peat soil in your quarter? Any black loose vegetable or alluvial soil of a loose character? Obtain plenty of this, mix nearly a half with your soil, road sand, manure, &c., and you will soon conquer the raspberry. Keep your soil high, and a foot deep, and give heavy mulching. Your *mini* is a confirmatory matter, both are half starved; root action not speedy enough for the demand. A deep and dark loose soil for *mini*.

CUTTINGS OF ROSES (J. H. Wilson).—No time should now be lost in putting in cuttings of the roses you name (Bourbons and Perpetuals). The spring is not at all a good time to put in cuttings of roses in general.

in the open ground, although those of some kinds of China and other roses will succeed as well in the spring as in the autumn. *Laure Davoust* is not at all a fit subject to plant against a tree. It is too modest to dispute the right of its roots with those of its huge neighbour. Plant *Felicite Perpetuelle* instead, and after a time bud the *Laure* on it, and the shelter of the branches will be in its favour.

GARDEN CLOSE TO A FOUNDRY (E. S.).—The Evergreen and Ayrshire roses in our lists, will grow as Climbers in your garden, but if you like them, take *Coloneaster microphylla*, *Jasminum nudiflorum*, as part of the Climbers, and as *Fuchsias* do well with you, increase the number. The *Hollyhock* is also a good thing to stand alone, but as the ground is very damp, we would not advise many herbaceous plants. Have you ever tried annuals? *Clarkias*, *Collinsias*, and such like, with all the *Larkspur* tribe, would be more likely to suit you.

MANURE FOR POTATOES (E. D. B.).—Potatoes are best grown upon ground that is moderately fertile from being manured for previous crops. If the soil necessarily used is so poor that manure at the time of planting is absolutely required, then use leaf-mould, charred refuse, soot and salt, and such like fertilizers, because the more ammonia there is in the manure employed, the more liable is the crop to be diseased. All dungs abound with ammoniacal salts. Spread whatever manure you use on the surface, and dig it in before planting. There being fruit-trees on the border (very bad gardening, by-the bye) is an additional reason for not employing rich dungs. None of those we have recommended will injure your trees. If you plant on the surface, and earth over the sets, as recommended at p. 117, you will less injure the roots of your wall-trees. Paint over your trees, to destroy insects, with the sulphur compound so often recommended by Mr. Errington.

POULTRY (Philanth).—Anster Bonn will feel much pleasure in considering the questions proposed in the article on poultry, which will appear the last Thursday in January, as they require rather lengthy consideration, and are, at the same time, of general interest.

GENERAL INDEX (F. W. S.).—At present we have resolved not to publish one.

OLD WHITE CHINA ROSES (Skinner Turner).—Apply to any of the large Rose growers; we cannot undertake commissions.

ZINC CHURNS (Bucolia).—Can any of our readers state their experience in the use of zinc churns? If you write to Fisher Hobbs, Esq., Boxed Hall, near Colchester, we know that he will facilitate your object in any reasonable way. Our correspondent, also, wishes for a sow of the Chinese breed, which, she wickedly says, we, in a recent number, maintain, "live upon nothing, and fatten on the same." Biscuit siftings are most excellent for fattening pigs, and profitable, when they can be obtained cheap at the Admiralty sales.

HARTLEY'S ROUGH GLASS (Rev. J. S. L.).—We never heard of any valid objection to this glass founded on its not lapping well. It is a very great mistake to think that the laps of the glass for a greenhouse ought to fit close; so far is this from being the case, that we prefer the laps being open, and so does Mr. Crawshaw, the distinguished grape-grower. Such openings keep up a gentle flow of air, which is highly beneficial. If you have the rough glass you will not require blinds to your greenhouse. This glass may be described as softening the direct rays of light; it does not exclude them.

ASCLEPIAS TUBEROSA (J. B. H.).—This is a hardy bulb. You shall have a fuller answer next week.

EXCHANGE OF CUTTINGS.—*Flora Montague* wishes to exchange cuttings of a very large collection of bedding plants, *Fuchsias* and *Pelargoniums*, for plants of *Campanula carpatica*, &c.

EIGHT DESSERT APPLES (John Taylor).—The following will give you a good succession:—*White Joanetina*, *Early red Margaret*, *Kerry Pippin*, *Hicks's Fancy*, *Margil*, *Pitaston Nonpareil*, *Lamb Abbey Pearmain*, and *Sturmer Pippin*.

COTTAGE GARDENERS' DICTIONARY (Ibid.).—It is now complete, and may be had bound in cloth, price eight shillings and sixpence. We believe Lindley's "Vegetable Kingdom" may be had in parts, but it is priced thirty shillings.

INSECT (W. X. W.).—The insect on your *Soliga salicifolia* is probably the thrip. Try dusting your plant with Scotch snuff.

CONSERVATORY (M. C. A.).—If your present arrangement keeps the temperature, even in severe weather, at 10° above the freezing point, that is at 43°, that is warm enough if your plants are only such as are the usual tenants of a conservatory. If you require more heat and moisture, we do not think a single gas-burner will produce fumes enough to injure the plants, and it may be rendered very efficient by being beneath a pan of water, in keeping the air moist, which you say is now too dry.

MR. EDWARDS (A. R. S.).—We quite assent to your maxim, which in honest English is, the proof of guilt must be produced by the accuser. Such proof was produced. Two gentlemen came forward, who publicly stated they had marked the *Tulip* shown by Mr. Turner at one show, and that the one exhibited by Mr. Edwards, at a following show, had their mark upon it.

FASTENING VINES TO WALLS (J. Hemming).—Nothing is more easy than having *ayed* nails for training vines to walls. We think they are sold made of iron, but we have used the brass eyes made for stair-carpet rods, screwing them into the walls in the places required. Thanks for the note on *Solfatarre*, which shall appear next week.

CHEAP BROWN PAINT (Deodara).—We hear the following recommended as perfectly weather-proof. Dissolve eight pounds of glue in boiling water, with which slack a bushel of lime until it becomes of the consistence of paint, and colour it with Venetian brown to any depth of tint you prefer. Lay on three coats of this mixture with a painter's brush, taking care that each coat is dry before putting on the next; over the third coat, by the help of a dredger, dust sand, or grey-stone powder.

PEATY SOIL (W. F.).—Our correspondent says:—"The land that I want a little advice about has been in cultivation for several years; the top soil in some places is so shallow, that if we plough a little too deep we bring up a kind of decayed wood. It does not appear to benefit the crops, but more the other way. There are from two to three feet in depth of it before we come at the clay; and, now I am naming that, I might as well say our land has all been well clayed. What I want to know is, as so much has been said about charring, and this stuff—you may call it what you like—burns so well in summer, whether it would not be possible to turn the top spit off, and char some of it for drilling in with the crops?" Nothing more easy. A furrow might be drawn, a spit taken out from the bottom; then the top soil from the next furrow turned into it, and so on until a spit has been taken from beneath the surface all over the field. When this top spit has been charred, the remains might be spread over the surface, and ploughed in. *Salv*, to be sown on wheat crops, had better be put on in March, at the rate of five bushels per acre.

PHENOMENON CUCUMBER.—E. L.—, Tavistock, wishes to know where this variety can be obtained?

CHARCOAL (W. Everitt).—We will obtain some information for you.

HEDGEHOGS.—Will some of our readers give J. C. information in answer to the following:—"Can you inform me the best way of preserving hedgehogs? I hear they are very useful in a garden, as they devour slugs and other enemies, and my garden being enclosed with a brick wall on all sides, they cannot escape. In July last, I turned a hedgehog into my garden, and it appeared to do very well, and to get its living, until about a month since, when I found it dead in a hole under an old cucumber-bed, which was its place of retreat. Do hedgehogs require feeding, and do you consider them useful in a garden? They are very fond of dead bees, as I saw great quantities devoured under my hives, and also living bees, when these were so unfortunate as to come in the way. They also greedily devour beetles, cockroaches, &c. I also turned about twenty toads into my garden, but they seldom made their appearance, and are now probably domiciled for the winter somewhere, if not dead."

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As it will be the object of the Conductors to place before their readers information on all the best and newest Flowers and Plants, with Illustrations of them, it will be the interest of Cultivators residing at a distance from London to acquaint them, from time to time, with the existence of novelties worthy of being figured, described, and cultivated. All such communications will be treated with attention and impartiality.

London: W. S. Orr, and Co., Amen Corner.

WEEKLY CALENDAR.

M	W	D	D	DECEMBER 25—31, 1851.	WEATHER NEAR LONDON IN 1850.				Sun	Sun	Moon	Moon's	Clock	Day
					Barometer.	Thermo.	Wind.	Rain in In.						
25	Th			CHRISTMAS DAY.	30.030—29.995	45—27	W.	—	8 a. 8	53 a. 3	6 51	3	bef. 11	359
26	F			ST. STEPHEN.	30.155—30.150	46—39	W.	—	8	53	7 59	4	0 41	360
27	S			ST. JOHN THE EVANGELIST.	30.197—30.128	48—28	S.W.	—	8	54	9 7	5	1 11	361
28	SUN			SUN. AFTER CHRISTMAS. INNOV.	30.265—30.238	46—28	W.	—	8	55	10 13	6	1 41	362
29	M			Velvet Duck comes.	30.227—30.030	49—35	S.W.	—	9	56	11 18	7	2 10	363
30	Tu			Snowdrop flowers.	29.995—29.841	51—45	S.W.	02	9	57	morn.	8	3 48	364
31	W				29.810—29.704	52—50	S.W.	05	9	58	0 24	9	3 8	365

The taste for florists' flowers was first extensively promoted, if not originated in this country, about the close of the sixteenth century, for at that time a great increase of information as to their cultivation, as well as new varieties, were introduced by the Flemish Worstead Manufacturers, who were driven over to Norwich during the persecutions in their country, by Philip the II. and by the Duke of Alva, in 1567. They brought over with them Gilliflowers, Provence Roses, and Carnations. This was in the reign of Elizabeth (1558—1602), who was herself very fond of flowers. Tulips and the Damask, and Musk Roses, appear to have been introduced early in her reign. Gerard says, in 1596, that a principal collector and propagator of Tulips, had been so for twenty years, and had an immense variety. There is mention of a Florists' Feast at Norwich, so early as 1637, at which a play, or pageant, termed "Rhodon and Iris," was performed. In 1671, Evelyn mentions Sir T. Brown's garden there as being a "paradise of rarities," and that the parterres of all the inhabitants were rich in excellent flowers. In short, Gerard, and others, mention cultivators of flowers almost in every county of the kingdom. The taste pervaded every rank. The Duke of Somerset, the Duchess of Beaufort, Dr. Turner, Mr. Lete, a London merchant, the artisans of each manufacturing towns, are mentioned as delighting in flowers and flowering shrubs. The taste once become general, has never since abated, and occasioned the establishment of a distinct branch in the trade of plant-culture. Florists by trade are traceable in this country, in unbroken succession, from the reign of Elizabeth, and we may add, without any good ground for contradiction, that among our florists have been some of the most skilful, intelligent, and honourable of men. Among these was one for whose biography we are much indebted to a friend.

THOMAS HOGG was born in the year 1771, at a small village on the banks of the Tees, and when he was of a very early age, his father settled at a place called Ronaldkirk, near Barnard Castle, where he pursued the calling of a shopkeeper and farmer. When very young, the subject of this notice displayed a great fondness for books, and manifested a strong desire after attaining information on all subjects. His parents being in easy circumstances, and having the advantage of a respectable and well-conducted school in the neighbourhood, they lost no opportunity to encourage the natural taste of their son, and develop, so far as lay in their power, the abilities which he had begun to exhibit. They, therefore, gave him a liberal education, which consisted chiefly of a thoroughly classical character, and he soon began to distinguish himself as an excellent Greek and Latin scholar. His diligence and assiduity attracted the notice of Dr. Bligh, the incumbent of Ronaldkirk, who, having heard of his studious habits, and become acquainted with his proficiency in classical literature, as well as his general well-grounded information on all ordinary subjects, determined to introduce him to a more suitable sphere. He accordingly brought Mr. Hogg to London, at which time he was only about 20 years of age. His first engagement was as assistant to Dr. Thomson, who kept a large and highly respectable classical institution at Kensington. He remained in this situation for a considerable time, until the death of the Rev. Mr. Shepherd, the incumbent of Paddington. This gentleman also kept a large educational establishment, which became vacant at his death, and which was now succeeded to by Mr. Hogg. This establishment he carried on with much success, for a period of 30 years, during which time he also devoted much of his leisure to floriculture; but as his health gradually failed, owing to a nervous affection brought on by severe study, and close attention to his educational duties, his physician advised him to relinquish the school, and devote his attention exclusively to floriculture. He obeyed the advice, and we have reason for saying that when he published the following, in 1833, it was not dictated either by the querulousness, or the self-sufficiency of declining old age:—

"As to myself, who unfortunately have been an invalid for sixteen years, suffering from paralysis, and a diseased state of the nerves, and whose memory and faculties have been affected thereby, I cannot expect to claim any exemption from the like infirmities attendant more or less on old age; yet while I solicit indulgence on this account, I seek not, by unmanly concessions, to disarm fair censure and criticism of their just right to examine and judge of its merits; I mean as to the subject matter, and not the manner of describing it. My object (in publishing) is twofold; in the first place, I have been anxious sometime to amend and supply the defects in my former work; and, in the next place, I have been not without hope of deriving some small profit and advantage by publishing the Supplement on my own account; for the same necessity which obliged me to attempt seeking a livelihood in the garden, after I had been unfortunately rendered incapable of continuing my labours in the school, and I had then been grinding for thirty years, still exists in all its force; the gifts of fortune have not fallen to my lot; and I am therefore compelled to use the means within my reach for the subsistence of myself and a numerous family. Though my infirmities increase, and though I am able to do little or nothing myself, yet the same routine of culture and management will be continued, as usual, by my two sons, who have been, for some years past, the acting managers and florists in the business; so that my friends and customers may safely depend on being supplied with healthy plants, correct in every respect, as before. It is some consolation in being able to state, that, in all the dealings which I have had with florists, both in England, and in different parts of the continent, there is not one of them can say, that I have not honestly fulfilled every engagement."

The above is extracted from his Supplement to another small volume entitled *A Practical Treatise on the Culture of the Carnation, Pink, Auricle, Polyanthus, Ranunculus, Tulip, Hyacinth, Rose, and other flowers*. This was published first in 1830, and in nine years passed through six editions. They are amusing as well as instructive volumes, and the following will give our readers an idea of their varied contents:—

"One Christopher Nunn, of Enfield, Middlesex, a noted florist in his day, was eminent for his skill and dexterity in dressing Pinks and Carnations for prize exhibitions; some will even tell you, that Kit was the father of the art. Upon such occasions he had as many applications to dress flowers, as he had to dress wigs; for he was a barber and friarar by trade, and withal a good-natured, facetious, prating barber, and could both shave and lay a Carnation with the greatest nicety. The novices of that day, who, being unacquainted with his secret art, trusted to Dame Nature to open, expand, and perfect their flowers, were no match for Nunn; for he began where she left off, and perfected what she had left imperfect.—His arrangement and disposition of the petals were admirable, and astonished those novices. Kit's art of dressing is still an enviable art, and attainable only by few. Kit, as a florist, possessed other merit besides this: he could mix and temper soils with the same skill as he did his pomatum; he was a great experimentalist and compounder of manures; it was all the same to him, whether he snuffed up the odour of roses, or the less inviting fragrance of animal ordure; it was he that first applied sugar-bakers' scum as a surface dressing to flowers, having witnessed its surprising effect upon the land of a neighbour of his, a sugar-refiner from Goodman's Fields; and he also had the credit of persuading and convincing Sir Somebody Trevelian or Trevannian, a Cornish Baronet, that old rags and old wigs, which contained so much grease and human fat, were a much warmer and richer manure for his land than the oily carcases of his pilchards; and it is further said, that Kit, as agent or factor, in one week bought up more than two thousand wigs in the neighbourhood of that celebrated mart Rosemary Lane, which were sent down to try the experiment."

"MODE OF DRESSING A FLOWER.—I hardly dare attempt to draw an outline even of this sublime art of dressing a flower, because I have neither studied nor practised it myself; and therefore not being entitled to a diploma, I must neither assume the title nor degree of A.M., that is, Artis Magister, by which alone I might be held qualified to teach it, but must be content to be considered only as a pretender and quack upon this abstruse point. However, let us see what sort of a handle I shall make of it. In the first place, then, provide yourselves with proper instruments, namely, a pair of brass or ivory etui, commonly called tweezers, and a small ivory bodkin. As soon as the guard-leaves drop, clap a card on, and with your bodkin, from time to time, assist the petals in falling into their places; then fix a glass cap over the blossom, to bleach the white, and to enable the leaves, by the warmth, to expand freely; shade the glass, when the sun is out, with a cabbage leaf or bit of canvas; take the glass off for an hour or two in the evening to expose the blossom to the air, lest the colours become faint by too much confinement, and lose their lustre. Dissolve a little nitre or saltpetre in the water, before you put your flowers in it; this will help to stiffen the leaves. After they have been in water a couple of hours, take your etui, and pull the guard-leaves quite round and circular; then place the second, third, and fourth tier of petals in an imbricated form, that is, like slates upon a roof, or scales upon a fish,—a leaf covering each division of the leaves in each row or tier, till they are all arranged in a convex form, like the outside of a dome or cupola; place the bizzard and finely-striped leaves in full light, pluck out all white and or self-coloured, all pouncey and superfluous dull leaves; and those that will not lie, whirl with your bodkin into the crown of the flower; let the blooms be set in the cellar, or coolest part of the house, all night over a tub of water; mind that the clefts or fissures down the sides of the pod do not reach below the bottom external cup, and that the guard-leaves stand firm and support themselves without the card. A practical lesson, after all, upon the flower, is worth a dozen theoretical upon paper: learn this art by practice, and practise to learn."

Mr. Hogg, contrary to his own expectations, lived for nine years after the publication of his Supplement, and died as much regretted as he had lived respected. He was buried on the south side of Paddington church, near the road, where a small altar-tomb may be seen with this inscription:—

Sacred
to the Memory of
MR. THOMAS HOGG,
many years a resident in
this Parish,
who died March 12th 1841,
in the 70th year of his age.
Also MRS. ELIZABETH HOGG,
wife of the above,
who died February 15th, 1822,
aged 49 years.

METEOLOGY OF THE WEEK.—At Chiswick from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 42.6° and 31.1° respectively. The greatest heat, 58°, occurred on the 25th in 1827, and the lowest cold, 10°, on the 24th, in 1830. During the period, 112 days were fine, and on 56 rain fell.

THE age for expensive literature is gone, and the costly quartos and folios of former years stand on our shelves like the last of their race, for no junior of equal stature is ever added to them. Long may they thus remain, for they are monuments of the time when readers were few, and book-buyers were nowhere but among the wealthy.

Let us cast a glance over the dark past that we may contrast it with the brighter present, and thence learn that "a good time" is come, and what abundance of cause there is for us to be grateful. In another of our pages to-day, Mr. Errington has justly pointed out that the "good time" is come in cheapness of food and of clothing, and in improvement in cheap dwellings. Let us now show how it is come, also, in the increase of knowledge, and the supply of cheap, wholesome publications.

Look, first, at "the Book of Life"—the Bible. In 1540 the printer, Grafton, could only venture to print five hundred copies of his complete edition of the Scriptures; and no wonder, for the price of books was enormously high. In 1505 we find that Elizabeth of York gave twenty-pence for a *Primer* and *Psalter*, and that twenty-pence would in those days have bought half-a-load of barley. About ten years later, a large folio law book, about the size of Grafton's Bible, and called "Fitzherbert's Abridgement," cost forty shillings, for which sum three fat oxen could then have been purchased.

Contrast those facts with others now relative to the Bible. This "Book of Books" was to be seen at the Great Exhibition in hundreds of different languages; twenty millions of copies have been distributed by various religious societies within the last three half centuries, and a good-bound copy may be had for nine-pence.

Cheap books increase the number of readers in an equal degree as the increase of readers enable books to be published cheap. With the present century, as Mr. Knight has observed, a much larger class of book buyers sprang up, and principally from the middle ranks. For these a new species of literature had to be produced—that of books conveying useful information in a popular form, and for a small sum. In the year 1827, *Constable's Miscellany* led the way in this novel attempt, and in the same year the Society for the Diffusion of Useful Knowledge commenced its operations. In 1832 appeared the *Penny Magazine*, and *Chambers's Journal*. Of the first of these more than 100,000 were sold weekly, and of the second more than 40,000 are still sold in England alone, in defiance of the host of penny and two-pennyworths of sterling merit that have since risen to compete with it for public patronage.

The number of *weekly* periodicals, not newspapers, says Mr. Knight, issued in London on Saturday, May 4, 1844, was about *sixty*. Of these the weekly sale of the more important amounts to little less than 300,000 copies, or about fifteen millions annually. Of *monthly* magazines selling at various prices, from twopence upwards, about 170 are published, and besides these there

are thirty-eight at one penny, and eight at a half-penny!

Besides these there are the other births from the press of newspapers, monthlies, new books, and reprints, the annual returns of which have thus been recapitulated:—

New books and reprints	£435,000
Weekly publications (not newspapers)	100,000
Monthly publications	300,000
Newspapers	1,250,000
	<hr/> £2,085,600

In about a century this annual return has risen from £100,000 to more than two millions. The increased number of readers, the wider diffusion of education, the improved habits of the people, have caused this increased demand for literary works, but that demand would not have been sustained if superior books and periodicals had not been provided at a low price, and of this character are many books now by the side of our desk as we write.

The first that meets our eye is justly termed "a volume for all." It is *The Family Economist*, published monthly, at the price of one penny, and in a volume at the end of the year for a shilling! We can say of it, without any reservation, that it is full of useful information and amusement.

Next comes *The Cottage Lamp*, also published monthly, and priced one penny, of which we will say no more than that it is edited by the writer of "Our Villagers," in our pages; but we will give one extract:—

HINTS FROM AN OLD GARDENER—JANUARY.

A happy new year to you, John Brotherton; you appear with an inquiring countenance this morning.

Ah! I thought as much. I can always tell when a man is in want of information, there is an unmistakeable something in his face on those occasions, which can be read off at a glance. And now, since you have openly explained yourself, and ask my advice, that which I am able to give shall be at your service. Depend upon it, neighbour Brotherton, with God's blessing, happiness lies much nearer a man's own door than a great many people imagine. Yourself, and the object of your visit to me this morning prove this. You have shaved? Yes—smile if you like. The man who will allow his face to go unshorn, will neglect to clip his garden hedge. There is very great hopes for your garden, now you shave every other day, and as a matter of course, on the Sabbath. You own, that since you have given up attending the ale-house, wasting there your time, strength, and substance, and ruining your family, that all go on much better at home. And no wonder. Man was born for something nobler than to waste his existence in a pot-house. And if you would bring yourself to give up smoking, too, your health, as well as your pocket, would reap a still further advantage; and, for my own part, I never could understand the use or sense or smoking. Nay! do not think these words of mine unseasonable. I am accustomed to say what I think.

But now to the purport of your visit. Since you have been in the habit of spending your earnings at home with your family, you have a well-supplied cupboard, your house is clean and orderly, your wife, family, and self, cheerful and contented; your old haunts have no pleasure for you now; and, therefore, you wish to turn your attention, and occupy your spare time profitably, in cultivating your garden. Well, that's natural, for men's minds are never *idle*; if they are not thinking good thoughts, they are thinking evil thoughts; and how much better to find ourselves employed in better things, whereby we benefit, and become a blessing to those that belong to us, and an example of diligence for those who are round about us.

Yes, truly, your garden has been useless to you, and is now an eye-sore. So was this when I took to it. But come to me now and then, and we will talk and consider over matters. So, now, as the weather is open, go home and thin out moderately from your not old, but neglected, *currants* and *gooseberries*, those branches which crowd the middle of each, cutting them back close to the old wood with a sharp knife and a smooth cut; thin out around the outside of the gooseberries the young shoots of last season's growth, which are to bear this year, so that you can conveniently pass your hand between them; this will allow air and light to perfect the fruit, as well as give convenience in gathering. Shorten the young shoots which you leave on the bushes a little, with a sharp knife, a quarter-of-an-inch from a bud, beginning the sloping cut on the side opposite to the bud, and cut upwards. Prune the *black currants* after the same manner. The *white* and *red currants* bear on spurs; therefore, leave a larger proportion of main branches, and merely enough of young wood to spring from the bottom of the bush, to renew hollow places that may occur. It is advisable, now and then, to remove an old branch entirely, allowing a young one to take its place, in order to keep up a young and vigorous constitution in the tree. If hollow places occur near the ends of the branches, leave enough of the young shoots to fill them up, but by all means keep the middle of the bushes quite open. I believe your bushes are dotted, here and there, all over the garden. This must not be. Take up every one of them. Carefully preserve the roots in so doing, except those which strike downward; these are *tap-roots*, and must be cut clean away. Place them in a corner for the present, and cover their roots well with soil. Get your landlord to allow you to grub up those old worn-out *apple-trees*, which I have no doubt he will willingly do, when you tell him you are wishing to make improvements, and intend to furnish some better kinds in place of them. By the time you have done this, your garden will be clear for work; then we will see what is best to be done, in order to prepare for the vegetables your wife is so anxious to see smoking on the table!

You see I am now collecting stuff, in the shape of *manure* and *compost*, wherever I can, well turning and mixing it together. Good morning.

Lastly, we have *Richardson's Rural Handbooks*. A series of shilling volumes, beautifully printed and illustrated, and containing an amount of sound, practical information, such as is to be obtained nowhere else for the same money. There is only one volume in the series which we cannot unreservedly praise—*Donaldson's Soils and Manures*. It is good as a scientific work, but is out of place in a series of practical treatises like all the others; for in them, whoever has fowls, pigs, cows, bees, dogs, horses, or weeds—and who has not?—will find a volume of useful information relative to each.

GARDENING GOSSIP.

We are indebted to *The North British Agriculturist* for the two following notices:—

At a general meeting of the Horticultural Society, held in the Hall, Experimental Garden, on the 4th instant, *Dr. J. H. Balfour*, Professor of Medicine and Botany in the University of Edinburgh, was unanimously elected Secretary to the Society. On his election being announced from the chair, the Professor stated, that he had, after much thought, acceded to the solicitations of the Committee appointed by the Council to confer with him on the subject, and that although he felt the Society had suffered an *irreparable* loss in the decease of their late Secretary, *Dr. Neill*, he, the Professor, would, nevertheless, cheerfully give such attention to the duties of the office as his other engagements would allow, and would certainly do all in his power to sustain the high position which the Society had attained. We need scarcely add that Professor Balfour's position pointed him out as an individual eminently qualified, in

every respect, to fill the important office to which he has been elected; his name forms a sufficient guarantee that the scientific character of the Institution, as well as its practical utility, will be maintained.

Scottish Horticulture has met with a severe loss in the death of *Mr. George Dunbar*, Professor of Greek in the University of Edinburgh. This melancholy event took place on the 6th instant, at his residence, Rose Park, Trinity. The natural decay attending even an otherwise green old age has been for some years aggravated by a virulent internal malady, which at the commencement of the present session compelled him to abandon his academic duties; and the functions of the chair have, accordingly, been since very ably discharged by *Mr. Kirkpatrick*, from Oxford. The serious apprehensions then entertained for him were, within the last few days, fully confirmed by a series of spasmodic attacks, the violence of which ultimately proved fatal.

Professor Dunbar has been long known as an eminent horticulturist, and he has introduced many interesting and valuable plants into cultivation. His garden at Rose Park contained many specimens which did credit to his zeal and ability as a cultivator. He was long connected with the Caledonian Horticultural Society, and always took a warm interest in its proceedings. He attended the meetings with great regularity; his name was long on the list of office-bearers, and he was re-elected as one of the Vice-Presidents of the Society at the general meeting, which took place two days before his death. His name is recorded in the *Annals of Botany* by the Indian genus *Dunbaria*, dedicated to him by Wight. This genus belongs to the natural order *Fabaceæ*; *D. latifolia*, a beautiful scandent plant, was exhibited by *Dr. Cleghorn*, to the Botanical Society of Edinburgh, shortly before his departure for India.

It is in the department of Greek literature, however, that Professor Dunbar's name is best known. In early life he laboured for some time as a gardener, but an accident, from the effects of which he was lame during the rest of his days, incapacitated him for so active an employment. His attention, accordingly, was thenceforth devoted to literature, and an assiduous cultivation of the classics soon developed those faculties of which in subsequent years he showed himself possessed. Coming to Edinburgh about the beginning of the century, the attainments he had already acquired easily procured for him a situation as tutor in the family of the then Lord Provost Fettes. Having been shortly after selected as assistant to Professor Dalziel, he was appointed, on this Professor's death, to the Greek Chair in 1805. The duties of this responsible position he has since continued to discharge with a zeal and ability well demonstrated by a reference to the many eminent scholars which our Alma Mater has sent forth. In later years, however, it is needless to say, his occupation of the chair was not distinguished by the vigour and efficiency he had displayed in former years.

The published works of Professor Dunbar are all of them too well known to need any lengthened allusion. Shortly after his appointment in the University, he published the "*Collectanea Majora*," and "*Collectanea Minora*," both of which attracted considerable attention among educationists at the time, but have been latterly greatly superseded by more recent elementary works. His great work, however, and the one which may well be called the object of his life, is the "*Lexicon of the Greek Language*," which was given to the world with his name in 1840. The desideratum which this massive tome supplied in classical literature is acknowledged on all hands, and though various other works of a high standard of excellence have since appeared, it is still of high repute and likely to continue so. The author in his preface tells us he was engaged on it for a period of eight years, and of his assiduous industry and unwearied research, the work itself is a most enduring memorial.

Professor Dunbar died, we believe, in the 76th year of his age, having been born in the village of Coldingham, Berwickshire, in the year 1774. He was twice married. His remains were interred in Greyfriars Churchyard, the funeral being attended by a large number of the Professors and students of the University.

The last number of *Dr. Hooker's Rhododendrons of the Sikkim-Himalaya* is now published. These Rho-

dodendrons are indeed splendid, but we fear that the climate in which they delight is not to be procured here, except at an outlay even the wealthiest would shrink from. Intense heat and brightest sunshine, yet varied by sudden snow-showers during the day, and keen frost at night, is the only climate in which they flourish in Northern India.

The most complete herbarium that has ever been formed by an individual, or, perhaps, by any associated individuals, has now become the property of the University of Oxford. We allude to the herbarium of the deceased Mr. Fielding, of Lancaster. It is bequeathed by him to the University upon terms with which they will have no difficulty in complying, and is said to consist of seventy-thousand species.

All our readers must know the black-beetle-like insect so prevalent at harvest-time and in harvest-fields, and which has the power, when alarmed, of curving its tail upwards in a threatening attitude. This insect, popularly known as "The Devil's Coach-horse," and to naturalists as *Goriscus olens*, has long been condemned as noxious; but such condemnation is another of our "vulgar errors." It is a real friend to the gardener; for Mr. Curtis, at a recent meeting of the Entomological Society, stated that the usual food of this insect is the common earwig, and Mr. Westwood added that he had seen it attack a worm very far its superior in size.

NEW PLANTS.

THEIR PORTRAITS, BIOGRAPHIES, AND CULTURE.



JAMESON'S BROWALLIA (*Browallia Jamesoni*).—*Botanical Magazine*, t. 4605.—Those to whom this genus was known only by the half-hardy annuals, *B. elata* and *demissa*, could hardly believe that this plant was even in relationship with the genus, when it was exhibited at Chiswick, three summers back, by the Messrs. Veitch, of Exeter. It is a soft-wooded evergreen shrub, with beautiful orange-coloured flowers, requiring the same degree

of protection in winter as the *Salvia* from Mexico. It was discovered in Northern Peru by Dr. Jameson, at an elevation of 6000 feet, whence he sent seeds of it; and when the plant flowered, as above, it was thought to be a good acquisition to our Midsummer half-hardy plants, and, as often happens in such cases, it was introduced to our notice with extravagant praise, even before little, or nothing, was known of its real merits. Thirty-one shillings-and-sixpence were freely given for it, and in less than two years no one knows what has become of it; for it has not been exhibited since, and all that we have heard of it is that the whole force of the country could not flower it a second time!

The genus *Browallia* was named by Linnæus in honour of John Browall, his countryman and contemporary, Bishop of Abo, in Finland, a town once celebrated for the mineral springs in the neighbourhood, and its university, founded by Gustavus Adolphus in 1640, but which was destroyed by fire, with other public buildings and upwards of seven hundred houses, in 1827. The specific name was given by Sir W. Hooker in honour of Dr. Jameson. In the Natural Classification, *Browallia* is among the *Figworts* (Scrophulariaceæ), and is closely allied to *Salpiglossis*. In the system of Linnæus it is referred to the second order of the fourteenth class *Didynamia Angiospermia*.

Browallia Jamesoni is a shrub from four to six feet high, of rather straggling growth. *Leaves*, alternate, egg-shaped, short-stalked, wrinkled, and slightly downy, yet glossy. *Flowers* in a bunch at the end of the branches, bracts leafy, flower-stalks short; *calyx* large, tubular, and five-lobed; *corolla* orange-coloured, tube paler than limb, which has five lobes, the lower the largest; *stamens* four; *stigma* large and two-lipped.—B. J.

Propagation and Culture.—Any one who can strike, or root a *Fuchsia*, and grow a *Habrothamnus*, will find no difficulty in rearing and cultivating this beautiful plant; but hitherto we have all failed to flower it; and we have been put on the wrong scent, from the circumstance of its having flowered, by chance, so to speak, with Mr. Veitch at the wrong season. The only person, that I am aware of, who has succeeded in flowering it to perfection, is Mr. Jeffries, a nurseryman at Ipswich; and I must confess that I blushed deeply, after throwing the plant away, when I saw a beautiful specimen of it in full bloom with him at the end of February, 1850. I also saw Mr. Veitch's plant in flower, which was of a much deeper colour, but nothing to be compared for the number of flowers on the Ipswich plant. It blooms exactly like the *Habrothamnus fascicularis*, on the wood made the preceding summer, but it requires greater stimulus than the *Habrothamnus* to bring the flowers out to perfection. The way to manage it is this, and I would strongly recommend to gardeners to attempt it a second time. Take the oldest plant of it you can find next spring; a young plant from a cutting next February will not flower under two years, and this is what partly led us astray; it must have a hard woody bottom before it flowers. A plant now, in this condition, should be hard-pruned, all the soft wood cut away early in April, then force it very gently, and when it is fairly in growth again, shake it out of the pot, as you would a geranium, trim the roots freely, and repot it in a very rich light compost, and in a small pot; then let it be encouraged till after midsummer with a damp, close heat, the same way as a *Justicia*. When the young growth is four inches long, stop all the shoots, and stop the strongest of them a second time about the end of June; it should have a third shift about the middle of July, and as soon as it is well-rooted in this last pot, it is time to turn it out into the open air, and there to remain till the

frost comes; then shelter it in a cold pit till the end of January, then force it as you would a rose, and it will bloom beautifully, and last a long time. D. BEATON.

THE FRUIT-GARDEN.

THE PEACH AND THE NECTARINE.—REST-PRUNING, &C.—
(Continued from page 175.)

How it happens is not easily explained, but we believe it to be a fact, that a good peach cultivator is seldom a bad gardener. The truth is, that the man who grows the peach well, whether in-doors or out, for a series of years, must either have a very correct appreciation of first principles, or a degree of watchfulness and attention which is capable of grappling with most horticultural difficulties, from the cabbage to the pine. Indeed, he may have both; and had we not possessed gardeners of such calibre, the far-famed *Crystal Palace* would never have attained its wondrous celebrity. Now, in treating of *rest-pruning* as applied to the peach, it will be necessary to merge the nectarine treatment here, inasmuch as the difference required is so trifling, if any, that no sacrifice will be made, and a simplicity given to our proceedings that is of great importance to ladies and gentlemen young in the craft.

As before observed, when *growth-pruning*—*alias* finger-and-thumb work—in summer is duly appreciated, this *rest-pruning* will be almost a sinecure, and people will exclaim—"Really, how much better it is to anticipate these matters in summer, when the days are so long, than to wait until the short days of winter, when two men can scarcely give an equivalent in point of labour to the summer pruner."

But, admitting that prevention is better than cure, and that the maxims alluded to are undoubted, the advice here given, it is to be feared, must be so shaped as to meet *past practice*, which, in the main, has consisted in nailing in all the young shoots within the greedy trainer's grasp as thick as twigs in a besom. The first thing, of course, is to loosen all the young shoots, which, if your man has been a thick trainer, will not be a trifle. And now the pruner, being provided with a somewhat narrow-pointed knife, may proceed to reconnoitre his tree.

Thinning-out and shortening-back are of course the matters to be accomplished; and it may be remarked, that the extent to which the shortening is carried must depend entirely on the character of the young wood as to ripeness, and to the general habit of the tree. In young and fresh trees, where the wood is generally rather gross, and of course spongy, more of the points should be removed than in mature trees; maturity, therefore, in the young wood is the principal guider of the pruning knife. Mature shoots are much shorter jointed than those which are immature. Now, as the length of the internode, or space between the eyes, or buds, is of itself a sufficient criterion of the character of the wood for general purposes, we may as well state what it *should* be.

On examining carefully numbers of young shoots this evening, I find that those which average three-quarters-of-an-inch between the eyes are the most fruitful, and, indeed, that happy medium of strength which all good peach-growers aim at. Those only half-an-inch are rather too short of power, and argue a shy condition of root; whilst those over an inch are approaching the verge of grossness. We will, therefore, make the case more prominent thus:—

Below half-an-inch, too weak, if better wood is at hand.
Above half-an-inch, and below one-and-a-half, excellent; adapted both for bearing and providing succession.
Above inch-and-a-half, too gross, and mostly immature; adapted, however, with summer stopping, to build a large tree in little time.

Now, a careful distinction must be made in the mind between the age of trees. The above advice is intended to apply to *bearing trees* of some seven to twelve or more years of age—so that wood of stronger character may be encouraged on young trees, as tending to produce a fine tree in little time, provided growth-pruning is duly attended to. In all cases where strong leading shoots exist of the previous year's growth, with *axillary* shoots developed on each side, and a leader unstopped, such may at once be taken as an argument of neglectful summer practice. And now to fairly commence the *rest-pruning*.

It is best to begin at the bole of the tree, and work progressively upwards. We last year explained this; but for the benefit of fresh readers of *THE COTTAGE GARDENER* (which is said to be much in the habit of receiving infusions of fresh blood from the reading world) we must beg to repeat that every care should be taken to nurse and to coax all nice young shoots arising about the collar of the tree—say within a couple of feet. These have been termed a nursery for succession wood, and such is indeed the case. If a peach grower can always preserve his trees from naked wood, be assured that his management is pretty correct, and that he is attentive. Between every two branches, or, in other words, the angle formed by their junction, let the pruner look sharp out for the best shoot lowest down. This must not be suffered to bear fruit, however willing, therefore close pruning must be resorted to. Let it be cut back to four or five eyes, according to its character, and thus is the foundation laid for filling future blanks. Every angle must be looked into for the same reason; and, indeed, the same principle may be carried out to the top of the tree, being made, however, subservient to slight modifications occasionally, as there is not so great a reason to preserve them with the same degree of pertinacity in the upper as in the lower portions.

The forks or angles being thus examined, and *pruning for wood* having been exercised in a judicious way, the whole of the tree may be proceeded with, and this in general may be termed *pruning for fruit*—that is to say, leaving all well-placed and proper shoots as long as possible—as long, indeed, as their ripeness and the wall room will permit. No two shoots of the past summer should be permitted to range side by side, unless some four or five inches apart. As observed with the cherry, it matters not as to the older shoots; it is the *leaf-producing* shoots that must have room; therefore, a well-grown peach or nectarine will, when pruned, exhibit a regular succession of young shoots all over the tree—the training being on the fan system, which of all others we still hold to be by far the most eligible, although not quite so systematic as some others.

To digress for a moment. We would just point to the fact, that ever since root-management was esteemed a paramount consideration to *new* systems of training, the latter have gradually sunk into a state of disuse. Indeed, it is rare now-a-days to find a horticultural gentleman entering his study with the idea of recommending a refined system of training. Now that the mechanical texture of soils is better understood—now that summer or growth-pruning is well known to be capable of directing or diverting the juices, according to the designs of the trainer, irrespective of any *mode* of training, opinions regarding fruits have attained what we must term a healthy position; common sense, at last, prevails, and instead of taking up the old adage, and saying, "Much cry, and little wool," let us begin to shout, "Much wool, and little noise." The unassuming title, *COTTAGE GARDENER*, has certainly furnished a fair quota to this end, whether in fruits or flowers, and we say this fearlessly.

To return. Let us recapitulate some things before proceeding farther. First, the lowest young shoots in

a given branch have been made the most of; thinning out all over the tree has been performed, so that no two shoots lie together; now, then, a shortening, where requisite, may take place. We would here beg our readers to divest themselves of the idea that shortening is imperative: there is no act of parliament for this operation. There are three reasons for shortening back; two founded on principle, and one on expediency. The first and chief—as to the peach and nectarine—to get rid of immature portions which, if anywhere, are situate at the extremities of the shoots. The second is to excite the tree to produce more shoots lower down; and the third expedient, is when the trees are near the edge of the wall, to prevent their growing above it.

As to immaturity, we have before adverted to short joints as a criterion, in the general character of the shoot; but the inexperienced will need to know how much of the points may be considered immature. It will be generally found, that in shoots possessing internodes of more than three-quarters-of-an-inch, that about one-fourth of their length is somewhat more spongy than the base of the same; in other words, wood which has elongated since the beginning of *August*, will be of this character. The buds, moreover, upon immature wood, are not so plump, and they sometimes stand singly, instead of in threes, which latter is a pretty good criterion of sound and fruitful wood. All wood then, if pale and soft, may be removed, and this will sometimes be nearly a third part; more generally about a fourth. It may here be named that where three buds are clustered together, the middle is generally a wood bud, and the two exterior, blossom buds. When in pairs, they are generally both blossom buds, and where singly, generally a wood bud. Now it is bad policy to shorten back to a point composed of blossom buds only. How often have we seen peach shoots in June laden with fruit, without a growing shoot beyond them. And why? simply because they are formed injudiciously. It is not uncommon to find trees producing principally wood of this character. When such is the case, it argues an early breaking-up of the tree's constitution, if indeed it be not already gone. Abundance of wood-buds, on the contrary, are sure signs of vigour, if not of immaturity. Shortening to excite the tree to produce more shoots next year—where wood-buds prevail, this practice is often resorted to, and that it has this tendency cannot be doubted. Where, however, trees have been properly managed from the first, there is little occasion for this, except in the lower portion of the "forks." We seldom or ever practice it, for our trees are as uniformly clothed as if they were measured out with the compasses. Those who have unluckily what are termed naked shoots, must occasionally resort to this practice, and it may suffice to know, that the closer they are pruned (leaving four or five good buds) the better. Shortening back as an expedient needs no explanation. It often happens that young trees make very unequal wood. Some half dozen rods will take the lead in summer, pinch how we will. We have a case in point in the gardens here. The fact is the root action is so *keen*, that the tree becomes uncontrollable for a while. The only remedy is root-pruning, or if you will, transplanting. Many gardeners prune back these coarse rods very close, in order to strengthen the other portion of the tree. This we hold to be bad practice, and almost sure to sow the seeds of premature decay in the system. R. ERRINGTON.

THE FLOWER-GARDEN.

PILLAR ROSES.—From many letters which I have seen on the subject of pillar roses, I am led to believe that the subject is not understood by the great bulk of our amateur readers. What is a true pillar rose? is a very

common question; and I believe that if it were addressed to ten gardeners, and as many nurserymen, there would have been, at least, twenty different answers returned. If you stick the handle of the house-broom, or mop, in the middle of the first flower-bed you come to, and plant an old moss rose against it, and afterwards use the knife sparingly, in three years, or, at any rate, in four years, you have a pillar rose. I once saw a common moss rose, fifteen feet high, against a stable wall, and I have no doubt the moss roses called *Selina* and *Lancei*, two of the best new mosses, would soon reach that height in very good rose soil, and against a wall; and if so with the old moss and its seedlings, why not with the old cabbage rose itself and its progeny? On the other hand, should you go to the young plantations and root up a young larch tree twenty or five-and-twenty feet high, and plant it in a hole in a corner of the lawn, after the manner of a post, not intending it to grow, and then plant the *Felicite Perpetuelle* or *Bennett's Seedling* against it, either of which would soon overtop your larch pole, if you give them good stuff to grow in, still you would only have a pillar rose. Now, any height between that of the said broomstick and this larch tree will do for a pillar rose, and it will be within the law to call it so, provided, at every pruning time you cut away all shoots which overtop the pole; but if you will allow the *Dundee Rambler*, or any other of the rambling roses, to grow beyond your twenty-feet-high pole or pillar, such shoots will assuredly grow on, and in time will bend over and come down to the very ground in many streams of living beauty, then, instead of a pillar rose, you have a rose fountain. A "fountain of roses," however, is not of my manufacture; I was never so extravagant. Mr. Rivers is the architect who first planned and named this style of furnishing. The true origin of pillar roses, however, dates farther back than that of these fountains; it was on the first appearance of the hybrid Chinas and hybrid Bourbons that the foundation for pillar roses commenced, although it was some years afterwards before the idea of using them that way forced itself on the rose fancier. It was found impossible to keep these hybrids so dwarf as the old Provence and French roses. If they were pruned so close as was the fashion for dwarf roses, the hybrid ones would flower but very sparingly, and to this day some good growers are of opinion that we have not yet hit on the best way of pruning them, or on the proper season of pruning, even if we do know the right way. That question I intend to examine and discuss before I have done with the roses.

I well remember the disappointments we experienced, some twenty years back, in flowering the first good hybrid China rose that was sold—7s. 6d. and even 10s. 6d. was freely given for it, but after two or three years no gardener out of ten could flower it to his satisfaction. The more we pruned the more it would not flower; and the upshot of the thing was that a great prejudice against the new hybrids spread all over the country, caused by the first sample, which was, and is now, called *George IV.*, a splendid dark rose, and such a grower! A true pillar rose, the parent plant of which is now a quarter of a century old, and still in good health, as our biographer will tell us, very likely, some of these days, unless, indeed, the newer race of hybrid perpetuals drive all other hybrids out of the market, as nine-tenths of our best gardeners have already driven them from their borders to high standards and rows of stately pillars, the only two forms in which they can ever shine to the best advantage.

If I could reconcile myself to bush roses of the strong hybrid Chinas or hybrid Bourbons, it would be on this wise: I would choose a wide border that would hold four or five rows of them,—I would then plant them five feet apart each way, and never allow the knife to touch them in winter pruning. Every shoot would

be allowed its full length until the flowering was over, and then, say early in July, I would thin out the shoots, *not prune them*, as I would a gooseberry bush in winter; in most cases, two-thirds of the shoots would be removed altogether, the very strongest, the weak ones, and the two-year-olds; the rest would be of medium growth, and would be left their full length. After this cutting, the second growth, or Midsummer shoots, as we call them, would be sure to be too close to flower well next year. To remedy this, the whole would be looked over late in September, and all the crowded parts relieved by *thinning*, that is, the shoots to be removed would be cut as close to the stems which bore them as the knife could reach, that is our meaning whenever we advise thinning-out shoots of trees or bushes. This system, with some slight modifications, has been in use for some years among gardeners, but few of them have been bold enough to say so in print, because it is so much at variance with old-established rules. On the other hand, if we change these bushes into high standards we must prune a little after the thinning, at whatever time we choose to thin; not, however, because pruning is necessary for the health of the trees, or for increasing the bloom, but merely "for the look of the thing," to keep the head within reasonable bounds, and be well balanced all round.

For the same reason we prune them still closer when we have them against pillars, so that pillar roses, to keep a long time in good trim, must be thinned and pruned every year all the way up to the top, and no suckers, if possible, should ever be allowed to rise from the bottom of a pillar rose, for this reason, the youngest and healthiest shoots—as suckers are sure to be—are the readiest channels for the rising sap in the spring, and if the sap is allowed to run in that direction, what is to become of the shoots and branches which compose the pillar? Nothing, in short, but starvation, and the attacks of troublesome flies, red spider, and what not. It is true that a few suckers may become useful to screen bad management, by filling up bare places which the pruner should have foreseen and provided for; but to see suckers allowed for shifts of this kind under the eye of a good gardener, is as disgraceful to him as to see himself going about with a long beard.

Pillar roses, whatever be their height, look best when planted in straight rows, and all in one row ought to be as much as possible of the same height; they look remarkably well along both sides of a walk, either in dug borders or on grass, circular beds being cut out of the grass for the roots, the circles to be a yard wide, and the bottom of the rose allowed to spread out so as to hide all the bare soil, and to appear to a stranger as if it was growing directly out of the grass. When the pillar rose is first planted, the hole or bed for it on the grass should not exceed half-a-yard in diameter, for two reasons; the first of which is the temptation offered for planting some flowering plant for an edging to the rose, if the space was the full size at first, and although a judicious edging of the kind might look very pretty, it might prove a sad drawback to the experiment; and the second reason is the well-known aversion of all good gardeners to making a full provision for any fine bush or tree at the first planting, if it be on grass. We have found out, by long experience, that so long as we do not cramp the roots of such favourites, the holes for them cannot be too small at the first planting, and that it is best to increase the size of the hole year after year, or every two or three years, as the case may require, so that each time an immediate stimulus be given to the roots by the application of fresh compost as the roots increase. Besides, what an advantage it is for any of us who are not overburdened with money, that we can run the expense of providing for a row of pillar roses over so many years, instead of having it to do all at

once, which is, perhaps, the greatest consideration of all. Purse gardening is all very well for those who can afford it, but it never carries the same credit with it as good management with small means, never fails to do. In some situations—as, for instance, at the end of a straight walk, or at both ends—the two opposite roses should be of the same kind; and when they reached the top of the pillars an arch might be carried over from pillar to pillar, and the roses trained over the arch. For these arches we ought to plant some of the evergreen climbing roses, and they would cover over the arch as soon as the others reached the top of the pillars. This arching of pillar roses is the very opposite of the festooning system, and would be a very good break between the pillar roses along one walk, and festoons on each side of the next walk turning from it in another direction.

There is nothing theoretical or hypothetical in these views; I have seen the whole of them in full perfection this very week in the gardens at Claremont, one of the finest seats in England, now occupied by the family of the late King of the French.

Now, after all this, suppose an amateur just beginning to take up the rose fancy, who has made up his mind to have some of all the sections in the manner treated of in the last few numbers of *THE COTTAGE GARDENER*, what shall we recommend to him for real pillar roses, seeing that almost all the sections furnish plants that may be so treated? But first of all, let us fix on some standard height for the pillars themselves. It must be quite obvious that if we exceed a given height, pillar roses will not make suitable accompaniments to a walk, however wide it may be, although as single objects, or in threes or fives, tall pillars would no doubt make a very striking effect. My own opinion is, that seven feet would be the proper height for a row of pillar roses, when they were planted in lines or rows along a walk; seven feet to be the right distance from the walk itself, and about ten feet from pillar to pillar in the row; and if there were two rows, one on each side of the walk, the pillars should stand opposite each other as true as possible; but in matters like this, which depend entirely on individual taste, I have no right or wish to push my own fancy;—the only part I would be absolute about, if I had the power, is that, whatever the height of the pillar may be, it should stand the length of its own height from the walk. Pillars were invented for roses nearly twenty years ago, and seven feet was then the average height recommended for the *Hybrid Chinas*, which soon followed on the heels of *George the Fourth*. The introduction of *Hybrid Bourbons* did not alter the height of the pillars; and if there was a patent law on the subject, such only would be entitled to pillars, and *Chenairole* being the finest of all the *Hybrid Chinas*, the first two opposite pillars would be covered with it, followed by old *Brennus*, *Fulgens*, *Triomphe d'Angeres*, and a host of other rivals, including two generals now prisoners at Ham, while *Charles Duval* and *Coupe d'Hebe* would probably dispute precedence among the *Hybrid Bourbons*; and for the second place of honour we have *Las Casas*, *Paul Perras*, and *President Mole*, striving against a new comer, *Paul Ricaut*.

D. BEATON.

GREENHOUSE AND WINDOW GARDENING.

CAPE HEATHS.—*Propagation by cuttings*. "A paper on such a subject, in the short, dark, murky days of December. Well, what next?" Aye, what next, gentle reader, but something more about these pretty heaths, unless the "pressure from without" should send us cantering in another direction. And yet, where I disposed to be at all argumentative, which I am not, I might

assign reasons for referring to these matters now, such as the importance of being "ready, aye, ready." That to be "forewarned is to be forearmed," nay, that heaths may be struck in December, and in every month of the year, and that, in fact, the state of the cutting, and the circumstances in which it is placed, so that that state and these circumstances may act in unison, are of much more importance than any specified time; for in this, and every other case, time does not regulate these matters, so much as they fix and point out the time. When, therefore, in this work, and also in *The Cottage Gardener's Dictionary*, a certain period is mentioned as the best for propagating by cuttings certain plants, let it be understood that the time specified is that in which, under ordinary circumstances, the young shoots will be in the most suitable state, but never lose sight of the fact that the state of the cutting as young, ripe, or partly ripened—the points of shoots, or side-shoots, taken off, with or without a heel, &c., &c., are of far more importance than the adhering to any month in the year. Two men may cultivate their plants equally well, but by starting them into growth at different periods, and other matters, the cuttings from one might be in the best order in March, while June might arrive before the other's were equally favourable. Having previously disposed of all the preliminaries necessary, so far as pots, soil, and glasses were concerned, and keeping these remarks in view, I will now proceed to consider

3rdly.—*The best time for taking off the cuttings*: the suitable condition in which the cutting should be when taken: the position in which they should be placed and kept, and their future general treatment.

1st.—The best time for taking off the cuttings, other things being favourable, is from the middle of February to the end of April, or the beginning of May, as if inserted thus early, the free-growing kinds may be pricked and potted off before winter, and if invigorated with a fresh shift, the following spring will make nice bushy plants before the end of the summer. The slow-growing kinds, if inserted thus early, may be pricked out, three or four round the sides of a pot, when there is enough of the autumn left to enable them to get hold in their fresh quarters, and all those kinds which, though blooming late in autumn, and through the winter, do not bloom so thoroughly as to prevent the growing of young shoots, may have many points of leading shoots, and more still of nice stubby side-shoots, fitted for cuttings at this early period. Others, again, that flower late, may have their growth expedited by being gently forced, when the obtaining of young plants early is considered a matter of great moment; and cuttings taken off in good condition, after this stimulus given to fresh growth, strike more quickly than in any other circumstances. All who by means of placing a heath in a vinery, peach-house, or any place where an average rise of 10° is obtained for a few weeks over the average temperature of the greenhouse, will be in a position to obtain this advantage. An accelerating influence may also be given by enclosing the plant in a hand-light, even in the greenhouse, and thus curtailing the quantity of air given. Without these helps, and even with them, in the case of many summer-blooming plants, which make little wood while blooming, we must be content to take cuttings in summer and autumn, and even in winter, but, in most of these cases, we must expect to keep them in the cutting-pots all the winter, or even to give them the lift of a nice little hot-bed in spring. Spring, therefore, when the condition of the cutting is suitable, is the best time for propagating, but not so superlatively so, as to lead us to "give up" when other conditions in the cutting are favourable. What then

2ndly, are these conditions? The plant from whence the cuttings are taken should be sturdy and healthy, not weakly or diseased. The latter will often strike freely

enough, but are apt to carry their constitutional infirmities with them. There is more analogy, in this respect, between the vegetable and animal economy than many seem to imagine. Again, from a vigorous growing plant, choose the points of the medium-sized side-shoots, not the central or more succulent free-growing ones. In a rather weakly plant, do just the reverse. High vital action, free from the extremes of weakness and over-vigour, is the desideratum. Only the mere points of the shoots are generally used, and, therefore, we may well bestow a little care in their selection. The length of the cuttings generally ranges from one to one-and-half-inch in free-growing kinds, such as *Wilmoreana* and *Linnæides*, and from half to one inch in the case of slow-growing kinds, such as *Tricolor* and *Hartnelli*. The cuttings are thus entirely, or nearly so, of the current seasons' growth, not but that larger and older cuttings may succeed, especially if supplied with a warm, moist atmosphere, and more especially still, if such pieces of several inches in length, received a notch with a clean, sharp knife, some weeks before finally separating them from the mother plant. Such pieces I have seen do well, and they required much less of what some would deem *finicking* attention, either in preparing them or in their future management. If, however, there was a gain in saving of labour, it was more than counter-balanced in the loss of time in striking them when established, with these *tit bits* generally used. The condition of these little points is, therefore, a matter of primary importance. They must neither be old and hard-wooded, nor young and soft, and succulent, but just in the happy medium between the two. If too hard, they will exhaust your patience in waiting for roots, even though they keep, or seem by the top to keep, alive. If too soft, all your labour and schemes will not keep them from damping. If they feel firmish when pressed between the thumb and finger, present considerable resistance to the knife, and the lower part is tinged with a brownish, ripened appearance, these may severally be considered good omens. When a plant is forced into growth, as soon as the shoots are near long enough, it should undergo a process of hardening off again, before the cuttings are removed. In all shy kinds, the nearer the cut is made at the point of junction between the old and new growth, the better, provided the cut is actually made in the new.

3rdly. *Making and inserting the cuttings*. These are delightful but delicate operations—and that cannot be hurried. In such short young pieces as recommended above, nearly one-half is generally inserted in the sand in the prepared pots, and that part, therefore, must be deprived of its foliage. For this purpose some use small, sharp-pointed scissors. I prefer a very sharp pen or budding-knife. The great thing is to remove the foliage cleanly, without hurting the bark, though doing this very slightly is not so injurious as leaving any parts of the foliage. This done, the cutting must be cut clean across, horizontally, at the base of where a leaf stood, if the foliage is at all thin, either horizontally or in a diagonal line, if the foliage was thick set, the great thing in the latter and former case being to have a *smooth, clean cut*, which is generally effected by placing the base of the cutting on the thumb nail, and there cutting it with a lance-like knife. The next thing, when allowed to lie a little for the wounds to heal, is to insert them, not over thick, in the prepared pots. We suppose they have been wetted and drained. Before planting the cuttings we must see if the surface is smooth and level. If at all wet, a little dry sand sprinkled on the surface and pressed down tight, will make it all nice for dibbling. The dibber should consist of a piece of hard wood, brought to a point as fine as the size of the cuttings to be inserted. Where nicety is an object, one made of bone, like a bodkin, would take and keep a finer point.

If the arrangements recommended are attended to, all the finer kinds may be placed close to the sides of the pots. The cuttings cannot be made too firm, but one press with the dibber will do that more effectually than a dozen. Instead of poaching the sand, fill up the one hole with a little fresh sand, press it down with the point of the finger, and then, with a fine rose, water all over, and, as soon as the moisture drains away, each cutting will be held by the sand firm enough. The pots may then be set in an airy, shady place, and when the cuttings are dry, and not before, the bell-glasses should be placed tightly over them, their lower rims entering a little into the sand, so as to prevent air entering. This brings us

4thly. *To the Position and circumstances in which the Cuttings should now be placed.*—As a general rule, the cuttings should be kept closer and at a higher temperature than the plants whence they were taken. But circumstances must greatly modify that general rule; for instance, here are cuttings of free-growing kinds from plants slightly forced into growth in spring; an average temperature of from 55° to 60°, or a rise of from 10° to 15° over what at that time would suit the old plants, would answer well. But in the end of summer, autumn, and the beginning of winter, a rise of 5° would be amply sufficient, just because, in such circumstances, our object is chiefly to maintain the vital powers in slow action until the return of spring; and this in all cases where we cannot calculate on roots being emitted before winter. Again, in striking in the middle of summer, it will be of importance, by means of shading, and a north aspect, to get a cooler atmosphere than could then be obtained with a south aspect, although the pots be plunged in a medium that would yield a few more degrees of heat than the pots otherwise would receive on the average. It is of importance that the bottom temperature should be a few degrees higher than the atmospheric. When the latter exceeds the former, the tops are elongated before there is root action. Hence, though propagators succeed perfectly well by placing their pots with cuttings on shelves and stages, there is less labour and risk, provided damp is guarded against, when the pots are plunged fully three-parts into a bed of anything that yields a nice sweet, mild bottom-heat. Though pits, and frames, and a corner of a greenhouse, may all be made eligible for this purpose, yet where much is done the best convenience is a pit or frame *inside of a house*, and furnished with sashes in the usual manner. The pots being plunged in this pit, air may be given by tilting the sashes at the back; in dull weather they may come off altogether; and in bright weather, when kept on, there will be less necessity for shading, as the rays of light will become more diffused before reaching the cuttings, after passing the glass of the house, the glass of the pit, and then the bell-glass, and yet the weakening influence of shading be avoided.

5thly. *General Treatment.*—Wherever the cutting-pots are placed, let them have as much *light* as they can stand; but they must never be allowed to flag, either from sun or dryness. The first is easily counteracted by having caps of paper for each glass, and that is better than covering a frame, if you had one, for all cuttings will not need it alike. Damp and dryness are alike prejudicial, and the risks from both are increased by *flat-headed glasses*, as you must wipe them almost every morning, and thus you remove the moisture from the pots. If the pots are prepared as recommended, the *watering* may easily be given to the sand without touching the cuttings; but if so wetted, or if a rose is used, be sure the cuttings are dry before putting the bell-glass firm on. If, in watering in the morning, the cuttings should not dry quick, and you should be afraid of the sun, put the bell-glass on, but tilt it a little on one side that the cuttings may be dried. In a short time tilting with a small

pebble for an hour in the evening and morning will change and sweeten the confined air. By-and-by this tilting may remain on all night. When roots are forming, and growth proceeding, the glasses will only be required during the day. Discontinuance during sunshine must be effected very gradually. When rooted, and thus gradually hardened, the pots should be set by themselves, so that they be not debilitated by the treatment given to those not struck. When those ready are pricked or potted off, they should again be kept close until fresh growth has commenced. Those not rooted by the middle of September had better remain in the cutting-pots all winter, and receive a stimulus in spring. The mode of treatment we have already anticipated; as an addition to these many minutiae, use pure soft-water only, when water is necessary. R. FISH.

FLORISTS' FLOWERS.

MR. GLENNY ON FLORISTS' FLOWERS.

WHAT SHOULD A ROSE BE?

Roses appear to be the favoured flower among all classes, and, although we see hundreds of gardens without Dahlias, Hollyhocks, and many other distinguished favourites, it is all but impossible to find even a cottage-garden without Roses; and, as if instinct led the poorest man to get the best, the *old Cabbage* and the *old Moss*, are the general favourites. It may well be asked how many of the thousand novelties, palmed upon the public, will beat these two? And then, again, of the China kinds, how many will be found to surpass the originals, the *China Crimson* and the *pale one*, which furnishes the cottage fronts with roses nearly all the year? Not but that we can find many highly worthy of commendation and cultivation; but overlooking all the faults of the Moss and Cabbage for their boldness and fragrance, and the deficiencies of the two Chinas for their perpetual bloom, they are not easily surpassed for their peculiar beauties.

The qualities of a Rose should be fragrance, lasting bloom, doubleness, roundness, colour, habit, and abundant bloom. *Fragrance* speaks for itself; *lasting bloom* can only be secured by thick petals; *doubleness* gives the richness which a fully-bloomed Cabbage or Moss Rose possesses in an eminent degree; *roundness* is a quality which even our old favourites do not possess; because, to meet this quality, it should be half a ball; *colour* is matter of taste, except that a novel colour justifies adoption if ever so ugly; witness *Jaune Deprez*; nothing but a struggle between dirty straw-colour and dirty pink; but it was, in its day, new; *habit* relates to the plant; it should be short-jointed, foliage rich and glossy, the flowers on stems long enough to throw out the flowers beyond the leaves, and the bloom should be abundant and continuous. A summer Rose is beautiful for a month, but a continuous Rose, of half the qualities in the single flower, is worth a hundred, if it continue in bloom all the autumn. Nobody should plant summer Roses as the feature in a garden, because there is nothing meaner than a Rose-bush, or tree, out of flower. All the main features should be formed with varieties that bloom six months.

The recognised properties of a fine Rose, no matter what its habit, are, 1. The petals should be thick, broad, and smooth at the edges. 2. The flower should be highly perfumed. 3. The flower should be double to the centre, high on the crown, round in the outline, and regular in the disposition of the petals.

ADDITIONAL PROPERTIES FOR MOSS ROSES.—The quantity of moss, the length of the spines, or prickles, which form it, and its thickness or closeness on the stems, cannot be too great. The length of the divisions of the calyx, and the ramifications at the end of each lobe of the calyx, cannot be too great.

STAND ROSES FOR SINGLE BLOOMS.—The petals should be imbricated (lying like tiles on a roof), and perfectly symmetrical to the centre.

NOISSETTE ROSES.—The clusters of flowers should be sufficiently open to enable all the blooms to open freely, and the footstalks strong and elastic, to show the flowers to the best advantage.

CLIMBING ROSES.—The plant should be always growing and developing its bloom.

Indeed the quality, which is of the greatest value in Roses after scent, is the constancy of the bloom; without which the month of the summer flowers does not compensate for five months dreariness among the brilliant features of a nice border. "The Properties of the Rose," as published, goes more into detail, but these are the main points.

THE PROSPECTS OF FLORICULTURE.

EVERY florist knows that there is a standard for florists' flowers, and that the nearer a new variety approaches the standard, the more valuable it becomes; and that if the amateurs of this country could depend on any work, or any body, for a true character they would buy, as soon as it could be had, every flower that was a distinct improvement. But unfortunately they have been taught by experience not so to depend; for all who purchase novelties at the novelty price pay a great penalty for their enthusiasm. We are not in the habit of saying one thing and meaning another, and we state most distinctly, that there never was a period in which the amateur was more at the mercy of the dealer, nor has there been any period within the last twenty years in which there was such a thorough want of confidence. The consequence of this will be, *first*, a general feeling among amateurs against new flowers until they are proved to be good; because, by avoiding the purchase of everything until the second year of coming out, they will get everything at a fifth of the price, besides knowing what they buy, and the only disadvantage is waiting a season. The *second* consequence will be the establishment of societies of amateurs only for mutual information and protection. A gentleman has shown us his garden-book, in which is set down all the novelties he has bought during the last year, with his remarks on their qualities; and the money of which he considers himself completely robbed amounts to a frightful sum; because, as he justly observed, he bought nothing which had not been distinctly recommended, and, to a certain extent, guaranteed by persons considered respectable dealers, or by the editors of papers or magazines; and that deception, under such circumstances, ought to proclaim to the floral world in language not to be misunderstood that abominable ignorance, or scandalous want of principle, is always opposed to the interests of the amateur. The papers and periodicals professing to lead the public, with the solitary exception of THE COTTAGE GARDENER, have been monopolized by the dealers. We confess we should like to see a society of amateurs got up for the mutual information and protection of all; and we do know that hundreds have determined that while periodicals and papers are prostituted in the way they are, that the best policy will be to abstain altogether from the purchase of anything that is offered the first year. The party to whom we alluded as exhibiting his book, has shut it up for the season with the exception of a few things which he thinks he may depend on from the hints we publish. Not a plant will he buy till they are out, and reduced in price; for of more than one hundred pounds expended last year on novelties, and those of only three or four tribes of plants, eighty he considers thrown away.

ACACIAS (P.).—Nos. 1 and 2, although seedlings, exhibit no peculiarity. They are quite true *Armata lan-*

cifolia. It can hardly be expected that seeds of greenhouse plants will give a progeny that varies much. Their early bloom is nothing; there is no telling when seedlings will flower, so much depends on the culture they receive while, as it were, in their minority.

GERANIUM (X. Y.).—If its *white leaves* remain constant, it will be a great addition to our bedding-out plants, because the bloom is equal to that of *Tom Thumb*; but we doubt the constancy of the white foliage altogether.

W. P.—We have already noticed *Æschynanthus*; we are not slow to mention a good thing.

ANEMONE BLOOMS (J. S.).—There is nothing extraordinary in the Anemone blooming all through a mild winter, especially if it is a seedling. The semi-double flowers—that is to say, those with two and even three rows of petals—will, we hope, in time, produce much more double varieties; we cannot consider the so-called double Anemones at all in the nature of a double florists' flower. They are simply composed of florets in the centre of a disk of single petals, and are, as it were, another class of flowers. Now, the multiplication of the large petals, to form a bloom like a *Ranunculus*, is approaching to the doubleness we require; and as some of those sent have three complete rows of broad petals, there is every hope that the desirable model may be attained. Save seed from those with three rows of petals, and hope for four rows; cultivate highly. We value the specimens sent, because they are steps in the right direction.

MR. BURGESS.—Devoniana, Madame Deprez, Fallenburg, and Madame Laffay, are the names of the *Roses* blooming in the open air. They arrived in good condition. It is the character of these roses to continue blooming until the frost is severe enough to cut them off altogether. Frost will destroy flowers already opened, but mild weather will advance the buds, which take little or no harm; and there are many localities besides Farnham where they may be seen in flower now (Dec. 16), with every prospect of continuance.

FLORISTS' FLOWERS CULTURE.

THE VERBENA.—In writing on such florists' flowers as the *Verbena*, *Calceolaria*, *Petunia*, and others that are used as bedding-out plants, we are sometimes in fear of encroaching on the province of able coadjutors in THE COTTAGE GARDENER. For instance, our good friends Mr. Beaton and Mr. Fish write well and pleasantly, and very instructively about *Pelargoniums*, *Fuchsias*, *Roses*, and so forth; but then the one writes for the Flower-Garden on arranging and growing flowers to be admired on the spot, and the other confines himself to teaching the growth of plants generally for the Greenhouse, both irrespective of *exhibiting* purposes in such plants as are deemed *Florists' flowers*. These we consider to be our peculiar province, and we disclaim any intention of infringing upon or stepping over the boundary lines which our editor has drawn for us.

The above remarks were forcibly impressed upon our mind in commencing to write about that useful and lovely flower the *Verbena*; in writing on which, we shall confine our remarks entirely to it as for exhibition purposes.

For the sake of perspicuity, its culture will be divided into—1st. Soil. 2ndly. Situation in the open ground for plants to produce cut-flowers, and in pots to be exhibited therein. 3rdly. Planting and potting. 4thly. Protection when planted or potted, and when in bloom. 5thly. Preparing for exhibition, whether as cut-flowers or in pots. 6thly. Propagation, including winter storing and raising new varieties from seeds; and lastly, Insects and disease

1st. *Soil*.—Whoever intends to cultivate any plant will naturally, in the first place, be anxious to learn the kind of soil he ought to procure to grow it in. Some plants flourish in a soil wherein others would perish. The *Heath*, for instance, will not grow in loam, but requires sandy peat; whilst the *Amaryllis* must have rich loam without any peat. Others do well in a mixture of various matters called, technically, compost. With these the *Verbena* agrees; it loves a light, moderately-rich compost, consisting of loam taken from the surface of upland pasture in turves two or three inches thick. These should be carted home, laid neatly on a heap not more than two feet thick. Let it lay quietly for three months to allow the grass on its surface to rot; then turn it over three or four times for the next nine months, chopping the turves small as they are turned over with the spade. At the end of twelve months it will be fit for use, but will improve by turning over for another year. If it can be had, procure at the same time a batch of sandy peat, and subject it to the same process; also, a quantity of the fallen leaves of trees—the beech and the oak are the best for floral purposes, but they require a longer period to rot than the leaves of the sycamore or of the horse-chestnut. These leaves, when collected, should be laid in a long heap, not too thick, or they will heat so much as to destroy a great part of their nutritive properties. To prevent this, turn them over frequently, and if they appear dry, throw on them large quantities of water, which will greatly assist their decomposition. By such means we have got excellent vegetable mould in twelve months. All these being ready for use, mix together a sufficient quantity in equal parts for present use about a month before it is wanted; mix them well at the time, and turn them over once a few days before the potting season; then bring the compost on to the potting-bench when it is moderately dry, and proceed to pot the plants. Here we would remark that the peat-soil is not absolutely necessary. If it cannot be conveniently had, dispense with it, and use about an eighth-part of fine river sand to equal parts of the loam and vegetable mould. Again, if our amateur florist is so unfortunately situated that he cannot obtain the vegetable mould, he may use the loam and sand, and about a sixth-part of very rotten dung, such as is made of stable-litter and horse-droppings; or, in other words, good old hotbed manure. We have thus made known how a compost to grow them in pots should be formed for the *Verbena*, the loam being the article indispensable. If the soil in the florist's garden-beds be not too old, a mixture of leaf-mould and manure must be well incorporated with it during winter, digging it over at least twice previously to planting; but if the natural loam be poor, or heavy, it should be removed away entirely to the depth of nine or twelve inches, and the place filled up with the compost. This will last, with the addition of a little leaf-mould, or very well decomposed manure, for three years.

2ndly. *Situation*.—In the open ground for plants to produce cut-flowers, and in pots to be exhibited therein. Beds for florists' flowers in the open air are best in an open exposure, sheltered by hedges or walls from the north-west, north, and north-east winds. These shelters should not be too near the beds, or they, if hedges are used, would, by their roots, impoverish the soil, and would draw up the flowers weak and spindly. If walls are used as the shelter, the bed for the *Verbenas* should not be less than four or five feet from them. The borders close to the walls might be made use of for early spring flowers, such as the various kinds of early flowering bulbs; and after they are decayed down, might be planted with greenhouse shrubs, either planted out, or plunged in their pots; or some of the tender annuals might be grown in such a warm situation very successfully. The beds for *Verbenas* then would be sufficiently

sheltered without being injured by too much heat, and the space agreeably filled with flowers. The bed, or beds, for the *Verbenas* should be long, and not more than four feet wide; and then would contain two rows, allowing them space to spread out a little every way, and thus multiply the chances of having good flowers. The situation for plants in pots to be exhibited therein we must leave to be described in our next. T. APPLEYBY.

(To be continued.)

NOTES MADE DURING A TOUR IN AUGUST LAST—(Continued from p. 168).

TRENTHAM.—*Machines*. In this extensive place, in respect to the pleasure ground, the mowing of the lawn is a very heavy and expensive business; at least it was so when the common method of cutting the grass with the scythe was followed. To lessen this labour and expense a large mowing machine was procured, to be drawn by a horse whose feet are shod with a broad, flat shoe, made of leather, and strapped to the legs of the animal. This machine answers admirably; the lawn was in excellent order, evenly cut, and as much done in a day as formerly occupied four or five men, besides women to sweep up the grass. Our readers, no doubt, are aware that the mowing machine not only cuts the grass, but gathers it up as it is cut, so that the labour of sweeping is entirely saved.

Fleming's Weed Destroyer.—This has been already described frequently. We need only say that it is a machine slightly resembling a common watering-cart, such as is used to lay the dust in our streets. It is supplied with hot water strongly impregnated with salt, and is drawn along the walks, scattering the saline fluid upon them. Mr. Bailey, gardener at Nuneham, has written against it in a contemporary gardening paper, but we must think he has never seen the walks at Trentham, or he would have been convinced his strictures were not exactly right. We can bear testimony to the effects produced by it. Not only was every weed completely destroyed, but even in shady places, where formerly moss abounded, and rendered walking a rather slippery effort, the walks were effectually cleared from moss, and presented a clean, comfortable, dry walk, such as the most delicate, thin-shod lady might walk upon with pleasure. We are happy to find that an old friend, a most excellent gardener, Mr. Tinker, who, for nearly half a century, has been a successful manager of the gardens belonging to Lady Ramsden, at Byram Hall, near Ferrybridge, in Yorkshire, bears testimony to the good effects of Fleming's Weed Destroyer. He has obtained one, uses it when required, and, in his own emphatic words, he declared to us "that it was one of the best and most useful machines for the garden that ever was invented." Mr. Tinker's walks, too, were in excellent order, both such as were exposed, and such as were shaded, and, in consequence, liable to be grown over with moss. We hope to see the day when at least every large garden will be furnished with this very useful and effective machine.

A Leaf Cart.—We observed a cart to be drawn by one or two men for the purpose of collecting leaves. The wheels were broad and low, whilst the body of the cart was large. It looked like an enormous box placed upon four broad, low wheels. In the autumn, when leaves are to be collected in quantities, both for useful purposes and to clean the walks and pleasure grounds, this appeared to be a very useful conveyance.

Flowers.—The kitchen-gardens at Trentham are, as might be expected, very extensive, and, by their neatness and excellent arrangement, are rendered not only useful, but positively attractive; and, to increase their attractiveness, are bordered all round the quarters with

flowers. This, we think, is a practice highly worthy of imitation; for why should not a nobleman have a border of flowers in his kitchen-garden as well as the cottager? There was a peculiarity in planting these borders that we should have been glad if our friend, Mr. Beaton, had seen; and we trust, now he is enjoying his honourable repose (*otium cum dignitate*, which has been translated "ease and digging tatoes"), he will give himself a treat, and visit these celebrated gardens next year in the month of August, as we did this year. This peculiarity of planting the flowers, consisted in having for the back a row of *Scarlet Penstemons*, then a row of *Yellow Calceolarias*, next a row of dwarf *Bronze-coloured Calceolarias*, in front of these a row of the dwarf *Blue Lobelias*, and then, next the walk, an edging of *Common Ivy*, kept close by the shears. The whole had a singular and pleasing effect. These beautiful flower-borders were, to make a rough guess, some three or four hundred feet long, and looked like a long rich and variously-coloured ribbon, stretched out along each side of the walks.

Cryptomeria japonica.—In the pleasure-grounds we noticed several of this beautiful evergreen, the Japan Cedar. Though not the largest we have seen, they certainly were the handsomest. In general, this fine plant is rather thinly branched, and often of a bad colour; but here the stems were densely covered with branches, and the leaves were of the darkest and richest green. We were informed this effect was produced by first draining the ground effectually, and then enriching it with well-decomposed manure, and in summer giving the trees occasionally a good soaking of liquid manure. These stimulants appeared to give a health and vigour to this beautiful member of the Pine tribe, that was really admirable. Surely this is a lesson worth studying and imitating. These are but very imperfect jottings of the gardening at Trentham. All we can add is, go and see, and be gratified and instructed as we were.

T. APPLEBY.

THE KITCHEN-GARDEN.

RAMPION.—If we are to be entirely guided by the patronage shown to the various objects grown for our tables, and allow our judgment to be guided solely by that general approbation which stamps certain vegetables as "absolute necessities," we fear this little unpretending adjunct to our list of winter salads will be coldly received, more especially as we cannot advance that now-a-days necessary qualification, that our protegee is "new." On the contrary, we perfectly remember the cold fingers we often had in our boyhood, when washing and dressing this little esculent for the table of our employer; yet, notwithstanding its antiquity, we are convinced it is very little known, and we take this opportunity of calling the attention of our gardening friends to its merits, not the least of which is its extreme hardiness, and when it is known that it can be had in all weathers, from October to April, without calling forth any of those anxious cares, which we are compelled to exert in behalf of things "forced or protected," we think its demand on our notice is both just and reasonable.

The object of our present article belongs to the extensive family of "bell-worts," and botanists have named it *Campanula rapunculus*:—it is said to be found wild in several of the Southern and Midland counties, and Hooker describes it as a perennial, whilst, with us, its disposition to die off immediately after flowering or ripening seed, would incline us to believe it only biennial, but, as that point is foreign to our present purpose, we at once proceed to the culture. The seeds of this plant, like that of most of the family, are exceedingly small, consequently the ground must be made very fine for its reception, and but very little covering must

be given:—from its liability to run to seed in the autumn, some cultivators recommend it not to be sown before May; which advice we by no means impugn, provided there appears a likelihood of getting it to vegetate well at that period, if dry weather sets in, but we have so often been disappointed in delaying the sowing of this and some other things until May, when the pressure of other business has sometimes prevented that attention in watering, &c., which is so necessary to obtain "a crop," that we have of late years preferred sowing earlier, on ground neither too rich nor too dry. Usually we sow on a west border, some time about the middle of April; the seed does not vegetate so quickly as the cabbage tribe, and as we have said, being very minute, is unable to bear the scorching effects of settled dry weather, if left to a later period. We generally sow broad-cast, and thin out afterwards, but we let them stand tolerably thick, and we have known an excellent gardener who never thinned them at all, alleging as a reason that, instead of their forming a straight, useful root, they were more likely to spread into a lot of useless fibres laterally, when not standing pretty thick. Now though we cannot altogether coincide with this view, yet we must not wholly disregard it, and we believe botanists are agreed that all the portions of this plant, growing underground, are "roots," which they tell us is not the case with 'carrots, beet, &c. We may, therefore, class the eatable part of this vegetable as a "tap root," which certain vegetables, as well as trees, are in the habit of sending downward, while, at the same time, they derive the most of their food from a lateral supply. We have often seen the rampion do best on a poor light soil, but never on one likely to lack moisture in August, because the plant, if checked in its progress towards perfection, makes a sort of convulsive effort to reach the object "nature had ordained for it," i.e., "ripen and shed its seed for a future progeny," prematurely runs to seed, and its use as a vegetable is then at an end; whilst on the other hand, a too rich soil induces a grossness which only enlarges the top.

We will, however, suppose the crop to be all that can be desired, and the autumn or winter arrived; let us then address ourselves to its use, and although it can be grown with very little trouble, endures all weathers, and is ever ready for use, for at least six months of the year, yet it requires a somewhat tedious manipulation to prepare it for the table. Its fibrous roots must be all removed, and if forked, only two of its limbs retained; the top, too, must be so far reduced as to leave only a small tuft to handle it by; and lastly, the whole root must be peeled, not scraped, all excrescences cut away, and the neck dressed somewhat uniform. It will then appear as white and delicate as the first turnip of the season, and may be sent to table with every prospect of its becoming a favourite there. We believe its principal neglect to arise from the trouble it gives to those having the winter salad to prepare. The poor garden boy will be glad to escape a duty that involves so many cold fingers, and the liveried denizens of the "pantry, to whose tender mercies such things are sometimes consigned," are still more likely to neglect an article requiring some little time and care in the preparation. So that we would advise our gardening friends who may be anxious to extend its use, to see to it themselves for a few times, and it will soon be known what opinion their employers have of this much neglected vegetable. In concluding this article, we may add that its leaves have been recommended as small salading, but we have always held it be inferior to the American and golden creas, to which its leaves bear some resemblance, that we have never used it for that purpose, but as a winter esculent, and one which can be had at all times, we think it indispensable.

SUNDRIES.—It often happens that in a mild autumn

weeds, such as groundsel, chickweed, grass, &c., rise up, and grow amongst the various crops in the kitchen-garden, which, independent of their unsightly appearance, are sad robbers of the proper crop. Now in beds with alleys between, the operation of hand-picking them may be easily performed without injury to anything, but it is certainly wrong to trample on, and tread the ground between rows of cabbages, coleworts, or even winter spinach; therefore, whenever any quantity of these depredators make their appearance amongst these crops, in which there is room to use a spade, let advantage be taken of a slight frost, and dig these marauders in. Of course it must only be done very shallow, but the stirring of the soil will be beneficial to the proper growing crop, as well as fatal to the spurious one, and the whole will have a more tidy appearance. See that the *mice* have not found their way to the new sown peas; usually they are most destructive when the peas are just showing themselves above ground, but trap and kill all that come in the way. It will now be advisable to sow a few more *Peas*, to follow those sown in November, and if very severe weather occur in March, we have known this Christmas-sowing become the most useful. *Potatoes* must also be got ready for forcing, and may, in fact, be

started in pots. Those we recommended to be placed in some warm medium some time ago, may now be put singly into five-inch pots, to be planted out in hot-beds in the middle of January, and as some mishap often befalls *French beans* at this untoward season, a few more may be put into heat at intervals of ten days or a fortnight. Keep those that are in a healthy state as near the glass as possible, but not so as to touch it, there being a great amount of impure exhalations at this season, which, reaching the glass, run down and injure the foliage of anything in contact with it. *Vegetables* in general use may be housed and protected, as recommended in former Calendars,—in hard weather let increased attention be paid to things in the course of forcing, and let the ordinary routine work of the garden proceed in accordance with the season, always bearing in mind that a much busier time is coming, and everything that can now be done to facilitate work in the spring, ought to be done,—do not therefore delay on the score that another time is as good as this. In gardening every season has its duties, and if those at the present one be less pressing than at another, do not let us aggravate the busy one by that thief of time “procrastination.”

J. R.

MISCELLANEOUS INFORMATION.

ALLOTMENT FARMING—JANUARY.

WITH right good will we wish our allotment friends “A happy New Year,” in conformity with the long-established usage, a custom in Britain, and more than a custom, for it is a household form of blessing, closely identified with cheerful and contented hearths, plum-puddings, blazing logs, and holly boughs. Although our chief duty is to say useful things about the *out-door* affairs of the cottager, yet surely our labours are not of so grave a character as to hinder the “God speed” of the olden times, or the congratulation of the English cottager on his advanced position.

“The cottage homes of England,
By thousands on her plains,
They are smiling o’er the silver brooks,
And round the hamlet fanes.”

That the cottager has advanced, no one acquainted with the past and present state of society will deny. Exceptions there may be, deep shadows in the portrait, but they only serve to place the main features in brighter relief. It is almost needless, in confirmation of this, to urge the fact, that the working classes enjoy plenty of good wheaten bread at half the price of former days; indeed, such was out of the cottagers’ reach less than a century ago. Wearing apparel, too, in general, is nearly thirty per cent. cheaper; whilst his tea and sugar have decreased in a similar way, and still better days dawn upon him. It is evident that the well-conducted labourer is one prime consideration of the advancing age. Sanitary measures, as connected with the dwellings of the labourer, are constantly before the public; and, indeed, everything argues that all classes of society feel in the most lively manner that the welfare of the whole social machine depends on each part, even the most humble, receiving a full share of attention, and a thorough investigation. In moral and educational matters, too, the same advance is to be plainly seen; every movement of any consequence being marked by a humanising tendency.

We merely point to these facts at the commencement of a new year to incite to renewed energies; for nothing is more likely to accomplish such than an assurance of real progress; which is, perhaps, best attained by a consideration of the condition of the labourer now as compared with his position in the earlier days of some of the oldest living neighbours of our cottage friends.

In again offering practical advice on allotment and cottage-gardening matters, we must advise our OLD READERS that they must not expect great novelties in this way; much that has been said must, at times, be repeated, for lack of

better material. Moreover, new readers may not have access to the back volumes, and such must not be kept in the dark as to the principal matters in cottage garden economics through an affectation of novelty.

DRAIN WELL.—This advice, the fundamental step to all real progress, whether in small farms or large ones, is but too often considered as “an old song.” The little holders will be ready to cry out, “Everybody knows that.” Well, but everybody does not perform it when necessary; and two-thirds of the holders of land consider their soil as scarcely needing it, when the very reverse is the case.

Stagnant soils are, doubtless, in general, some five degrees, at least, colder than mellow and well-drained soils, and this is a most important affair. Hasty observers may think that this only concerns the mere earliness of the crop, but they are much mistaken. It need scarcely be named here that the more the average ground-heat is in advance of the air-heat, by natural means, the more luxuriant is the crop; for the rooting is more rapid, and this argument applies to three-fourths of the year at least. Here, then, a double reason for drainage. We know that difficulties may have to be met; but who accomplishes anything great or good without both meeting difficulties, and courageously grappling with them?

If the allottee is pressed for material—pressed for time, let him respectfully make known his impressions to his landlord, and the convincing and persuading him may also prove of service to his brother allottees if this kind of co-partnership exist. That neighbourhood is very strangely situated which neither furnishes gravel, furnace clinkers, cinders, nor any kind of stone. Certainly, tile-draining is the thing; but we name these other materials to show that if tiles be wanting, it is by no means difficult, generally, to accomplish draining. The worst thing with small holders is the horse-labour part of the proceeding; let us hope that landlords in affluent circumstances will not hesitate graciously to confer such a boon, providing his tenant show so much spirit.

Next in consequence to good drainage may be placed deep culture; indeed, this is but a complementary part of *high* culture, following in its wake. Certainly, if the plot lie on a sour subsoil, and is shallow above, although the temptations to deepen it are strong, yet such must be done with caution.

After draining thoroughly, subsoiling should be practised; for be it remembered that subsoiling is not confined to the plough. The aim of subsoiling, according to the doctrine of

the late Mr. Smith, of Deanston, is progressive improvement and deepening, preceded by draining where necessary. The working of the process is this: draining, by emptying the wedged-up soil, admits the air, the air carries heat from the surrounding atmosphere, besides a considerable amount of gaseous matter; the former has, at least, a mechanical agency, the latter is of a chemical character. Their joint action, in due time, performs changes of importance; inert portions of the subsoil are, after a while, improved, and thus fitted to blend with, and to deepen, the surface soil; and, with regard to this latter, such materials as weeds, straw, clots of raw manure, &c., are thereby brought into action, and prepared to present food to the young plant in a digestive state. Our agricultural chemists have much to say on this subject, but this may suffice for those of our allotment friends who would, with a laudable emulation, fail know the chief arguments for thorough draining and subsoiling.

The matter, however, does not stop here; when a man manures a plot of ground, he certainly raises its value for a year or two. Thorough draining and subsoiling, judiciously performed, raises its value for ever, or, in other words, as long as vegetable culture shall prove remunerative. And now about deepening the soil; what does this accomplish? Everybody must know that a few inches of soil burns, or dries up, sooner than a foot or two. Now, in summer, when our most productive crops are, or ought to be, in vigorous growth, every stoppage, from whatever cause, is a positive loss—a loss which can never be regained. Here, then, lie the two extremes of agriculture and horticulture—wet and cold, hot and dry. A little farther explanation is necessary. Deep soils encourage deep roots; deep roots have a surer guarantee of a permanency of moisture than shallow ones; hence deep roots are “at work” in extremes of drought, when shallow ones languish. With the Swede turnip, and, indeed, many other crops, these temporary checks are every one inducements for the enemies of vegetables to commence their attacks, whether it be insects, or the no less destructive fungi. The mildew in Peas, the Swede, the Common Thorn or Quick in our hedges, all appear to have their rise in this—a *perverted* state of sap; for it is well known, that whether in the vegetable or animal kingdoms, the more healthy the subject and the better the conditions connected with its being, the less it is liable to disease.

Enough for the present about these matters; our apology for the introduction of which must be, the extra opportunities afforded in this, the dormant period of the year.

RIDGING OR FALLOWING.—Disturbing the soil, in any known way, during the winter, is always of much service; but deep digging, and forming the soil in high ridges, particularly so; this will sometimes cause soils to produce crops, which, by ordinary means, they could not do. The bringing up to the surface fresh material, whether organic or inorganic, so freshens and improves the soil, that with the addition of the mechanical breaking down of the soured lumps of soil by frost, a new bed is prepared for the fibres of the future crop. The destruction of insects, too, and their eggs, is alone worth the trouble. We make a point of deep trenching every portion of our land once in three years at farthest, much of it every second year.

THE DUNGHILL.—As evaporation does not proceed during cold weather with any loss worth consideration, those who are out of employ cannot do better than turn their midden, first throwing a good coating of salt over it, if at hand. Any soot, well-burnt ashes, charred materials, sawdust, leaves, vegetable matter, &c., lying about, and not for any particular purpose, may be first strewn over the heap, and care taken during the turning to thoroughly mix the whole. Very long, and fresh, or tough manure, may be separated from the mass, and passed on for a succeeding dunghill, or for other purposes. The latter article, indeed, is very useful for early potatoes, if it can be thrown together and slightly fermented; this, and plenty of burnt, or rather charred, material, will make a capital dressing, and a little brine might be added just before it is dug in the soil. Although it is not well to use much manure in the present state of potato culture, yet, for *very early* potatoes, some mellow manure is very serviceable, unless the ground be naturally very good.

EXISTING CROPS.—Little besides greens will be found in

small gardens at this period, and these should be principally of kinds that need no protection. If, however, any of our allotment or cottage friends have raised a lot of Coleworts, according to former advice, let us warn him that such are tender, and that if he cannot protect them with a little litter during *very severe* weather, he had better bunch them, and hurry them into some thriving market. Our practice is to take all these things up, and keep them close together, by which means three or four bundles of clean and new straw will protect some thousands. Those who resort to the covering process, either with these or any other vegetable, should observe a few simple rules, founded on well-known principles.

1st. When a sharp frost sets in, and the soil is frozen nearly an inch, be sure to cover your vegetables before the sun can possibly melt their stiffened foliage.

2nd. Do not uncover at all whilst the frost lasts; endeavour to keep them constantly frozen, and to ward off cutting winds.

3rd. When a thaw ensues, still leave them covered until they are fairly thawed beneath the covering; and even then leave a flickering shade over them to avoid a too sudden sunlight. These maxims we have proved for some twenty years to be sound and applicable to almost everything that carries living foliage.

CHOPPING FOR JANUARY.—Little can be done in this way at present. If it is necessary to have a few very early peas, some of the Prince Albert kind may be sown in the middle or end of the month. If a succession is required, a row of the Charlton, or Prussian, may be sown at the same time. Longpod Beans may also be planted at any period after the middle of the month; crops got in at that period may be relied on, those sown in December cannot, and however we may wish the small holder to enjoy a goodly lot of vegetables, we dare not recommend *uncertain* crops.

RADISHES.—A pinch may be sown in the end of the month; but as we shall have to name this as a mixed crop we pass on.

THE HORN CARROT.—Again we recommend this to the earnest attention of the allotment man and cottager; we could pay the whole rent of their plot with a few beds sown in the end of January. A light soil is by far the best; and very old crumbling manure, with a little sand blended, is excellent dressing. We have had capital crops with old tan, or leaf-mould, fine with age. The beds should slope slightly to the sun, and a sprinkling of radish seeds, of the frame kind, may be thrown over the beds before covering. We will advert to their subsequent culture in next.

CABBAGES.—Towards the end of the month a plot of ground may be prepared for a plantation of cabbages, from those plants sown in August. The soil must be rich.

Next month will usher in the spring as to cropping purposes; and in the meantime let us urge all who desire to reap both satisfaction and profit from their little plot, to endeavour to excel; now is the time to lay down sound plans to that effect.

R. ERRINGTON.

APIARIAN'S CALENDAR—DECEMBER.

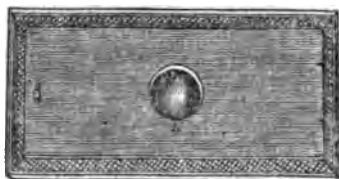
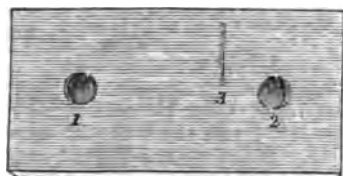
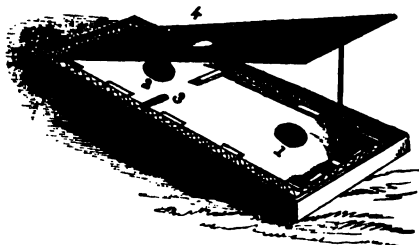
By J. H. Payne, Esq., Author of “*The Bee-keeper's Guide*.”

In noticing the hives exhibited in the Crystal Palace, I would say, first and foremost in my opinion stands Mr. Taylor's *Eight-bar hive*, and Messrs. Neighbour and Son's *Improved Cottage hive*, both exhibited by Messrs. Neighbour. Mr. Taylor's combines all the requisites of a *good hive* with nothing superfluous, more perfect simplicity there cannot be, consequently the cost is reduced to the minimum, to those who choose to place it in a bee-house, for like Mr. Taylor's other box-hives, it is adopted either for in, or out-of-doors. For the latter purpose, outer cases of half-inch deal can be added, with a roof and stand similar to those adopted in his original *double bar-hives*. The set comprises three boxes; the dimensions, as now being made, are thirteen inches-and-a-quarter square, with *eight bars*. The height inside, *to the top of the bars*, is seven inches in the stock-hive, six inches in the super, and four inches-and-a-half in the triplet, or centre box; which, as it will only occasionally be required, is not furnished with bars. Altogether, the boxes are made in conformity with the modern

opinion, that shallow, wide hives are best adapted for their intended object, and this form presents an improved outward appearance. One main feature consists in each box having its own independent floor, and top-board, giving facilities for moving, unknown to any other hive. Through these the holes are so cut, as to admit the use, at pleasure, either of two small, or one large glass, for those who prefer them to the box super. The stock-box can be made with the usual single entrance, or it may have two distinct doorways, near the extremities of the front. In summer, both entrances are opened, but in winter one of them may be closed, by which means the bees (being in a shallow box) are farther removed from the influence of cold air, than when the door is in the centre.

Besides the hives already mentioned, the Exhibition contained nothing original, or very good, beyond mere modifications of old things—nothing to give even a new idea; and the same remarks are equally applicable to the foreign exhibitors.

I will now endeavour to fulfil my promise in giving a description of *Mr. Kitchener's ventilated passage* as exhibited in the Crystal Palace. This very ingenious contrivance, by means of which the two splendid glasses of honey (by far the best in the exhibition) were obtained, is made of half-inch deal, the upper side of which is twelve inches-and-three-quarters, by twenty-two-and-a-half. The under side ten inches, by nineteen-and-a-half, leaving a space of one inch-and-an-eighth between it, and a rim of an inch which surrounds the upper side. This space of an inch-and-an-eighth round the under side is filled up with perforated zinc; the two boards are kept at the distance of three-eighths of an inch from each other by means of blocks; the under board has a circular hole in its centre, fig. 4, of three inches-and-a-half, and the upper one two of the same size, figs. 2 and 1, the centre of each being five inches-and-three-quarters from the end. A slide, fig. 3, is fixed near the middle, for the purpose of cutting off the communication when necessary between the glasses. The ventilator as exhibited is now with Messrs. Neighbour and Sons, 127, High Holborn, who, I am sure, will have pleasure in shewing it to any one who may call on them for that purpose.



And now a word or two as to the method of using it, which Mr. Kitchener has done with undeviating success in the summers of 1848, 1849, and 1850. In the first place, he puts on to the stock hive, a small super in the ordinary manner, and it is not until this super is half-full of comb, and *quite* full of bees, that he begins to use the ventilator. He then lifts up the super, and places the ventilator upon the stock hive, putting the super on the hole, fig. 1, of the

ventilator. In a favourable season it is not long before more room is required, and he does this by placing an empty super between the original super and the ventilator. When the last super is partly full of comb, and full of bees, he then, and not till then, moves it to hole, fig. 2 (of course then opening the internal communication, fig. 3), and he has then generally to place yet another super beneath the first; and in one or two instances he has had to put on a fourth, two over each hole. The great point to be attended to, is not to make use of the ventilator *too soon*.

The advantages Mr. Kitchener considers to be great; first, there is no brood in the supers, for he has never yet had an instance of a queen being hardy enough to traverse the aerated passage; and, secondly, there is no discolouration or impurity; the heat and steam ascending from the hive is checked by the ventilator, and the perforated zinc at the side is made quite wet and discoloured by it; this he considers a very great advantage, and the purity of the honey is still further preserved by the reduction of the heat in the supers, effected by a division of the masses of bees. Still he is free to admit that in this last summer he was not so successful as before, but this he attributes to the season; yet he has great confidence that in a favourable season, *and for such only it is intended*, an apiarian may, by the use of this simple machine, greatly improve the quality of the honey, and lessen the chance of losing all by an untimely swarm. He further says, that if it fails with any one, it will arise from a too hasty use of it, and this is the caution it is necessary strongly to impress on any one intending to give it a trial. It may be well to observe, that this machine is more especially intended to be used in a bee-house; if used abroad, some protection from wet must be afforded.

STOCK HIVES.—All the attention that will be required during January, will be on a mild day to clean the floor-boards, and to see that they are free from damp, and that the coverings of the hives effectually keep out the weather; should it, however, unfortunately be found that damp exists in a hive, it will be better to exchange the floor-board at once for a perfectly dry one, and to go on to do so once a-week through the winter, or till all appearance of damp ceases to show itself.

MINER'S AMERICAN BEE-KEEPER'S MANUAL.—Having been very much amused with the author's opinion of straw hives, and the manner in which he expresses himself upon the subject, I cannot forbear giving a short extract. He says, "Straw hives are not much used in this country (America), and they never would have been made in any country, but for their cheapness. The peasantry of Europe, who are not able to furnish their apiaries with wooden hives, still continue in the use of those made of straw; I consider this kind of hive as wholly unfit for the use of people who live in a land of plenty, and who are able to make wooden ones at a rate but a little dearer than those made of straw. Straw hives are only worthy of a state of abject poverty, and I hope I shall never see one in this land of milk and honey, where every man can sit down to his 'roast beef and plum pudding,' and go to bed with his pockets jingling with 'mint drops.'"

STRAW HIVES.—The time is fast approaching for having a supply of new hives, and where those of straw are used, I would recommend a swarm never to be put into an *old* hive; the old hives will be useful as covers to glasses, and for living second and third swarms that are to be joined to others on the evening of the day they swarm. Where wood hives are used a second time, great care must be taken to make them thoroughly clean, and free from the eggs of moths. The little alteration made in the form of my improved cottage hive, I feel assured will prove a great advantage; my hive-maker is now busily employed in making them to meet the coming demand. The price, I find, will not be affected by the alteration in size.

MANAGEMENT OF POULTRY IN A CONFINED SPACE.

If you think the annexed worthy of a place in your COTTAGE GARDENER, accept it as from the pen of a practical man. I have long looked for an article from a fowl fancier, who keeps his birds up, or at least, like myself, who has no croft, or any larger place than something like six or eight

yards square. Many gentlemen, who are fond of fowls, would delight in keeping them, if they thought they could do so in a small space. This can be done even in your pigsty, and they are more profitable than pigs. My pens are about eight yards long and four wide, boarded on the top and sides to face the sun, wire latticed at the front, with a roosting place in the corner, made in a box fashion, with two perches, and a bag fixed at the front to keep them warm in the winter. Their droppings are taken from the house once a fortnight, as I have boards under the roost to catch them. The floor of the pen ought to be the natural ground, and this, by being dug up once a month, is kept clean. Scatter some barley or oats deep in the soil, and when you dig next time allow the fowls to pick the sprouted corn. This they delight in. The reader can choose what stock he likes best, mine are the Cochinchina and Spanish. These birds cannot be excelled for docility, beauty, and fecundity. Some are complaining of having soft or wind eggs. To those parties I would say, do you keep your food on boards or bricks, so that they cannot supply themselves with grit? Do you give them sloppy meat? I never give such food in the spring when they are laying; for then the most suitable food is the best heavy barley; with, now and then, a few oats and wheat, and once a week some offal meat, such as sheeps' roaps (pluck?) well cleaned and cut into pieces of an inch long. Sheeps' noses with the hair scalded off, or cut off with a pair of scissors, and likewise worms. You will find the fowls will express their gratitude for these things by returning you abundance of eggs. Do not forget to give them plenty of chickweed early in spring, and now and then a cow-cabbage, stuck in the ground upright.

My fowls never lay while they are moulting; if yours do let me know how you manage them. That is the most critical season, and then I supply them well with barley, oats, wheat, Indian corn, and soft meat of barley-meal with the best sharps, mixed rather stiff together, not exactly scalded, but made up with warm water. Fowls are fond of a variety of food and changed often, but for staple food, give them the best heavy barley. Put some lettuce seed into the ground early, and, as soon as fit, transplant in a warm place. Give your fowls plenty of these, as well as cabbage leaves. Nothing comes amiss to them in the shape of green meat. You will keep them healthy in this way.

If any of your fowls betray symptoms of disease, give them a jalap pill, and cram them a little with stiff barley-meal; I find this to answer all purposes.

Mind, when fowls are kept up as mine are, they must have their meat constantly by them, it will not do to feed them at stated times, for then they glut themselves, and do not lay so well. Whereas, if the food is by them, they take it regularly. This is very important.

I have raised some scores of chickens this season, and have had very good success with them, only I have had hatched three male birds to one pullet.

Great attention is required in rearing chickens, and those who are not fond of trouble, or fowls, I would advise them to have nothing to do with them. I have reared this season eighteen out of every twenty, and when I have lost any it has generally been by accident. The rules to attain success in rearing chickens are *care, attention, and a change of food*. Bread scalded in milk, grits, rice, barley, and for a change put some rice into the side oven with water; do not scald it too much, make it so that it will separate, or granulate, easily; the same with barley; and as soon as the chickens will eat well, give them barley-meal. Do not forget to give them once a day some chopped meat, such as beef and mutton; and of chopped green meat, such as lettuce, they will eat abundance.

Get your chickens hatched early, say in April and May. After setting your hens, have them regularly off their nests, and see that they feed with barley and soaked bread.

The strongest chickens come from the eggs of hens twelve months old, or the second season of their laying. One cock I allow to five hens. To have a strong healthy stock change your cock birds every two years; and never breed with the cocks from your own stock if you can avoid it. By this method you will keep up the quality of your birds. It is quite as easy to have good birds as mongrels. Mind you supply your fowls with plenty of broken mortar,

and good water constantly. I have some first rate early-hatched Spanish cocks to dispose of.

JOHN AMPHLET, *Walsall*.

BRITISH EATABLE FUNGI.

I WAS very glad to perceive in your last number for November, that you had at last taken up the subject of edible fungi; a subject that you treated rather coldly in answer to a communication I made to you in January, 1850. I was not surprised at the doubts you expressed in regard to the wisdom of trying experiments with fungi; for the subject was, at least in this country, a new one, and most of the persons with whom I conversed made similar remarks to yours, but I was not deterred from pursuing the inquiry, having none of those fears with which you and others were influenced, and I am now quite convinced, that if persons will only use the same caution in selecting other fungi that they do in gathering the common mushroom, there is little or no danger. We hear of persons being poisoned by eating mushrooms (the common *Agaricus campestris*); but how do we know the circumstances attending the treatment of their dish? They may have been dried up into a tough leather, and so made indigestible, or the epidermis, or outer skin, which we know is deleterious, may not have been taken off; in fact, many of our most wholesome dishes may be—and, indeed, have been—rendered unwholesome by bad management; and it seems a pity that a large mass of delicious and nourishing food should be condemned on account of the mismanagement of a few ignorant persons—food that in some countries is called the “manna of the poor,” and in others used for long periods in times of scarcity. All fungi are very rapid in their growth, and equally so in their decay, and in their latter stage are not considered wholesome; so that, to have them in perfection, they should be gathered, if possible, before decay commences, and used on the same day they are gathered. There are, no doubt, many of the fungi that are deleterious and unfit for human food, but these are much fewer in number than is generally imagined, and a very little instruction and observation would enable any one to distinguish them. It is a good sign where a fungus is devoured by animals, or even by slugs and insects; and as far as my experience goes, those which have a pleasant smell will be found to have a pleasant taste, and to be perfectly harmless; but I would advise no one to venture upon one that smells offensively; and I believe this to be a distinguishing mark given by God to enable us to make a safe choice. The animal instinct is often a safer guide to follow than even reason, which is many times led astray by numerous conflicting arguments. But in these last remarks I speak of fungi whose properties have not hitherto been investigated, and of persons who are not well acquainted with the subject, but there are many as well known as the common mushroom; for instance, the *Champignon*, as it is called, which grows in fairy rings, of which quantities are gathered for catsup; and *Truffles* and *Morels*, and a fungus which in the north is called *Jeus'-ears*, from which excellent catsup is made. Now there are many others, not so well known, that are equally delicious and safe, and have striking and peculiar characteristics that might very soon be as easily distinguished as the mushroom; and those persons who have not hitherto considered the subject, I advise to begin very cautiously, and advance only step by step, as they acquire a perfect knowledge of the plant. I have tried many, some that I did know, and some that I did not know, but using the caution I have mentioned above, I never found any harm in any of them, and most of them were exceedingly agreeable. It would be impossible in a letter like this to give a list of the various sorts: your readers must get the books that are written upon the subject, particularly Dr. Badham's, where there are several coloured engravings; but we want a book far more comprehensive than his. I will, however, mention two that your readers may begin with, which are perfectly safe, and which cannot be mistaken. There is the *Agaricus procervus*, with a long stalk like the stick of an umbrella, and marked with stripes like those of a snake, the pileus, or top, like an open umbrella, four, five, or six inches across, a ring on the stalk moveable, like that on the stick of an umbrella, and the epidermis, or outer skin, broken into warts or scabs;

here are distinguishing marks which, being unlike any other, cannot be mistaken, and your readers may depend upon its being safe, and even more delicious than the common mushroom, and from which a finer catsup may be extracted.

Then there is the common *Puff-ball*, which every school-boy is acquainted with. Now, I can assure you there is not a more nutritious or agreeable fungus eaten than this, if gathered at the proper time, and judiciously cooked. It is in perfection when full grown, and as white as a curd in the inside: if it have begun to turn brown it is unfit for use.

Well, then, we will suppose that you have gathered a *Puff-ball*, the larger the better (there are two sorts—the *Lycoperdon plumbeum*, small; and the *Lycoperdon Bovista*, sometimes very large; this last I consider to be by far the best), peel off the epidermis, cut the ball into slices near half-an-inch thick, sprinkle them with pepper and salt, with a little butter, and either fry them gently in a frying-pan, or put them in a dish in an oven (my cook likes the American oven best), and when sufficiently done, of which the cook must be the judge, they will be swimming in catsup, and should be served up when hot. A few months ago we found one that measured six inches in diameter when cut in two, and having some friends to dine with me, we had it dressed. The unanimous opinion was that nothing could be more delicious, and that it was very like a delicate omelette. It was so light and tender, that I believe a baby might have eaten it with safety. Some fry them with eggs and bread-crumbs, but we added nothing but what I have mentioned, and I do not think it could be improved. Those who like a stronger mushroom-flavour may obtain it by adding a small quantity of mushroom catsup, and which some of its thought was an improvement. J. C.—X.

HARDY BORDER FLOWERS.

DODECATHEONS (American Cowslip).—There are two species and several varieties of these beautiful, hardy flower gems, which might be as common in our cottage gardens as the primrose; and the very same kind of situation that well suits the double primrose would in every case suit the American cowslip, and I am quite sure the one is quite as hardy as the other, and a good, rich, soil, in a cool situation, suits either.

Now, there are mentioned in *The Cottage Gardeners' Dictionary* four varieties, all, of course, worth growing. These are—*Dodecatheon integrifolium* (entire-leaved). There is no variety of this, and it is of smaller growth than the other species, and flowers a month earlier, which renders it of more value. This species flowers in April, and its blossoms are light purple.

Dodecatheon meadia is light purple, and puts up its flower stems about a foot high. Of this species there are four varieties, some of which have flower-stems a foot-and-a-half, or even more, in height. They are—*D. meadia albidiflorum* (white-flowered); *D. meadia elegans* (rosy); *D. meadia giganteum* (lilac)—this, in accordance with its name, is the tallest; and *D. meadia lilacinum* (lilac). Now, this species and its varieties all flower some time during May, and are commonly called *American Cowslips*. They all make excellent front border plants, but, unfortunately, they are invisible for so many months in the year, that unless they are kept labelled (as all hardy border plants ought to be) they are too apt to get lost, either from forgetfulness, or from having strange persons to dig the borders. This is one powerful cause of our so seldom seeing these good choice plants in our flower-borders.

How beautiful a middling-sized bed of these flowers would look in May; a bed large enough to take in either the two species, and all the varieties, or the *meadia* only and its varieties, keeping the earlier species elsewhere. If a bed was devoted to the *meadia* and its varieties, I would plant two or four plants of every kind and colour to correspond with each other, and at least a foot-and-a-half apart from plant to plant every way, and all labelled. There the plants might stand for several years undisturbed; and, in order to keep up the beauty of the bed during the summer months, as many pots of scarlet geraniums or calceolarias might be plunged in pots, with a little care in the spaces, between the plants, without disturbing either the plant or its label; and these summer plants should never be allowed to overshadow

the whole of the crowns of the *Dodecatheons*, which might be prevented easily by keeping them nipped in. When the summer plant is over, or the frost puts an end to their beauty, then up with these, and carefully fork over the bed, giving the whole a nice top-dressing of sandy loam and leaf-mould, half-and-half, or if a little peat be mixed with it none the worse. This done, then an equal number of snowdrops and yellow crocuses in pots might be plunged in the geraniums' places. This done, and all made neat, the bed would be finished, and well filled for winter and early spring, and the two colours produced by the crocus and snowdrop, plunged alternately with each other, would have a pleasing effect in the early spring; and of course this bed would be visited enough in May, when the American cowslips were in bloom. In this way such a bed might go on for several years, only requiring a steady system.

When the American cowslips seemed to be too large, and required to be taken up and divided, then up with the whole, and make the bed anew; and the best time to do this is after they have done flowering. These plants have string-like and fibrous long roots, and are best divided with the thumb and fingers. There will be an abundance of surplus plants for distribution among neighbours and friends.

Of course we do not expect to see beds of these, or any other kind of flower, in the cottage garden, but it often happens that we may see a better bed of early cabbages there, than we can see in those of the wealthy, and a better double wall-flower, double rockets or gilliflowers, double red polyanthus, or double blue hepaticas.

I once knew a nice old motherly cottage dame, who was fond of having her cottage clean inside, and everything must be in its place, though in a very humble way, and her "flower-knots," as she called them, must be of the same keeping, and she had in her flower-knots all the sorts of the hepaticas that I ever saw. She had the double-blue and single, the double-pink and single, and the single-white, and was anxious for the double-white. These plants stood in the same spots for very many years, without injury, and in the spring, as they advanced into flower, she used to take her scissors and cut away the old leaves, a few at a time, so as to see the whole of her bloom; and no doubt she would have been as watchful over a few bunches of the American cowslip. If she had had them, she would have known where they were, whether labelled or not.

Cyclamens, or Sowbreads. There are several of these quite hardy, and they belong to the same natural family as the American cowslips. They, also, are very pleasing, pretty little low-front border-plants, of a bulbous character. They are most of them early April bloomers, the flowers pretty, and the leaves pretty too. They thrive well in sandy loam and leaf-mould, in the open sunny borders. A bed of these would look beautiful planted wide enough apart to admit of other plants to be sunk in pots during the summer months, to be dealt with as directed for the American cowslips, only that these bulbs might stand for many more years in the same spots, and become fine specimens, with attention to top-dressing, &c.

We have two plants in particular, of the Ivy-leaved kind, *hederifolium*, the red and white, one of each, that were planted at the points of two beds about ten or twelve years ago, and beautiful specimens they are, producing abundance of self-sown plants. There is just room enough for these two plants to stand in the narrow points of the beds where they get a little top-dressing once or twice during the year, and plenty of admiration during their flowering season. *The Cottage Gardeners' Dictionary* mentions the following kinds, as being all hardy:—*Cyclamen coum* (lilac and red); flowers in February. *C. Europæum* (lilac and red); this species stands in our English flora. *C. hederifolium*, the Ivy-leaved; flowers from August to September. *C. hederifolium albidum* (white). *C. hederifolium purpurascens* (purplish-flowered). *C. Ibricum*. *C. latifolium* (red); flowers in April. *C. linarifolium* (purple); April. *C. littorale* (deep-rose). *C. Neapolitanum* (red); April. *C. vernum* (purple); April.

All these may be planted in the open borders, where they might remain for many years, and would only require the earth to be carefully stirred. At the fall of the season, a good top-dressing not only looks like comfort, but is so; covering over all the surface fibres with good, rich earth, much invigorating the plant. T. WEAVER.

COCHIN CHINA FOWLS.

SUCH of your readers as, like myself, have been accustomed to regard THE COTTAGE GARDENER as a standard authority on the subject of poultry, must have been somewhat "taken aback" by Mr. Payne's letter on Cochin China fowls in your Number of the 27th of November last. His account of Mr. Punchard's fowls is most interesting, and very astonishing; but those who have, with me, taken "Anster Bonn" for their guide, and paid handsomely for true-bred (?) Cochins, as well as those who, as I, have had presented to them chicken, the parent birds of which we were informed, and fondly believed, were imported direct from Shanghai, and who were pluming themselves on having "something out of the common," will comprehend the annoyance of being told, as I was last week—"Your's are not pure-bred Cochins; there is but one true breed in England, for I have read it in THE COTTAGE GARDENER." "So have I read it," I replied, "but do not understand it; for I cannot believe that Mr. ———, who was many years a resident in China, would have sent my friend anything but the pure breed." However THE COTTAGE GARDENER was again hurled at me; and I quietly resolved, if possible, "to kill my enemy with his own sword."

This has led me, contrary to my habit, to pen a few remarks on this very interesting and highly fashionable subject; and if Mr. Payne, Mr. Punchard, or his manager, or our old friend "Anster Bonn," will supply the further information which I seek to elicit, they will confer a favour not only on myself, but I also think on all your readers who are amateurs in poultry.

According to Mr. Payne's statement, the average produce of Mr. Punchard's thirty-five hens during the spring and summer months, is 119 eggs and 15 chickens—that is, each hen must have laid an egg a day for seventeen weeks, and hatched two broods of chicken between January and September. The Cockerels, also, he tells us, "as they run in the yard," weigh from 9 lbs. to 10½ lbs. It will not be an extravagant conclusion to arrive at, that the full-grown cock must weigh 15 lbs.

This account, as to the weight of the cocks and fecundity of the hens, so far exceeds anything that I have hitherto seen, heard, or read, of this beautiful breed of fowls, that, could I see them, I am sure I should exclaim, with Mr. Payne, that "I had never before seen (anything worthy to be called) a true-bred Cochin fowl."

Before, however, I consign my own favourites to the ruthless hands of the cook (for if there is a better breed I must have it, having the peculiar taste of being satisfied with nothing short of the best of whatever bird or beast I keep, so far as my means reach) I should like to obtain every information respecting Mr. Punchard's breed of Cochins, which are now for the first time heard of in THE COTTAGE GARDENER, after many of its readers have paid from one to two guineas each for fowls which, comparatively speaking, must be worthless substitutes.

We know the difficulty of getting even a pair of fowls from China, and I therefore conclude that Mr. Punchard's stock of thirty-five hens, was principally bred in England, from imported birds, prior to 1850, when they obtained the three silver medals at Birmingham. In breeding and selecting such a number, it is probable that the owner would have many chicken, as well as eggs, to spare. Now, did Mr. Punchard dispose of chicken or eggs, prior to the exhibition of 1850, and if so, may we not reasonably conclude that the breed is this year to be found even as far west as the county of Cornwall? Again, what is become, or to become, of the 4,000 eggs, and 500 chicken, this year's produce, of which Mr. Payne speaks? The eggs are too valuable for the pastry-cook, and the chicken (killed) for the poulterer.

I do not ask these questions idly or inquisitively, but when we read of such an extensive store, sufficient to stock the United Kingdom, with this superlative breed of fowls, and introduce them into every farm-yard, the subject becomes one of public importance, and any additional information thereon, will, I feel assured, be acceptable to the readers of THE COTTAGE GARDENER.—H. B.

P. S.—Did Mr. Punchard carry off *all* the prizes at Birmingham in 1850, or were there any other pure-bred Cochins then exhibited?

[If we understand the facts correctly, there are two

breeds of fowls kept in China, just as there are more than one variety in our own poultry-yards. One of the China breeds, we gave portraits of in our third volume, page 172, and of the other in our present volume, page 137. These seem to be more prolific, and in all other respects superior to the others, though the first portrayed are very good. We hope to receive answers to all of our correspondent's queries? Some of the information he requires will be in our reports of the Birmingham show. Mr. Sturgeon, of Manor House, (Greys, Essex, who obtained the first prize this year, supplied Mr. Punchard with the fowls from which the latter has raised his stock.—ED. C. G.]

DRIVING BEES.

I BEG to thank "A Country Curate" for the readiness with which he answered my inquiries. I am afraid that his first reason is conclusive. It does not appear, however, that he has ever attempted fumigation with the top hole open; in fact, the contrary may be inferred, and he takes it for granted that the bees will not, on the introduction of the smoke, pass round or through the passages in the combs. It will not be necessary to drive up all the bees, if the queen, who is usually about the breeding combs (that is, in the centre of the hive, and, consequently, in direct communication with the top hole), will herself run with a moderate portion of her followers. The plan of shifting the hive will have the effect of soon strengthening the swarm. Uncertainty as to the whereabouts of the queen will be the chief drawback. The second reason I do not think so much of; the bees *do* rise, and that quickly; and I think that by slowly introducing the smoke, a sufficient number might be drawn up before it began to take effect. I am not very sanguine of success, but shall try the plan if my hives get well through the winter.

Whatever may be the result, I rejoice greatly even now at having committed my ideas to paper, since my doing so has been the means of drawing from "The Country Curate," not only the result of his enlarged experience, but a more practical view of the whole art of artificial swarming than, to the best of my recollection, has yet appeared in your pages.

With reference to the latter part of "The Country Curate's" paper, in which he seems to think that the jackets I have mentioned may be too hot in summer, I beg to assure him that I have not found such to be the case; my great difficulty has been to keep the glasses, which I work inside them, sufficiently warm. Should they be found too hot, a few holes, cut just below the upper rim of the jacket, and acting in connection with the entrance, would, perhaps, create a kind of Polmaise action, and cause a current of air to circulate within. I like very much the appearance of straw hackles, but they take up considerable room; and where the joining system is adopted, it is as well to have the hives as close together as possible. R.

THE DOMESTIC PIGEON.

(Continued from page 130.)

CARE TO BE TAKEN OF THE AVIARY.

In the country, pigeons almost always have the liberty of leaving their aviary to exercise and divert themselves abroad. All the races of pigeons are fond of liberty, but none abuse it, and wherever it can be procured for them we there certainly see them more healthy and more productive; this, however, is not the opinion of M. Vitry. He thinks, "that, in general, those pigeons that are confined in a spacious aviary are much more productive than those which are allowed to ramble about at their pleasure." Several races cannot remain entirely prisoners without losing all their charms, and their names (Tumbler, Carrier, &c.) sufficiently indicate this. All these when confined are dirty, and more easily attacked by vermin, which they cannot destroy by stretching themselves out in the rain, which they are very fond of, nor can they invigorate themselves in the sun. They are also deprived of the pleasure of seeking for their young such food as they know instinctively to be very wholesome for them; and, lastly, their moulting is very difficult. The aviary, then, should be as much as possible

open; but as in large cities it is not always possible to give them their liberty, because, being generally placed on the roofs, they would too often become the prey of cats, which are continually lying in wait for them; we must, therefore, take such measures as to be able to let them always enjoy the sweet influences of the air and the rays of the sun. For this purpose we must fix near a window, but outside of it, a very large cage of wire lattice-work, in which they can go out and take their exercise at all such times and hours as inclination may dictate. The flooring must be of planks, the sides of wirework, and the top covered with a wooden roof, which will prevent the rain from entering, otherwise it would form, with their dung, a dirt which would stick to their feet and their feathers.

As soon as the eggs are hatched in a nest, we should be very careful to keep it clean; every two or three days, from the date of the birth of the pigeons, we must change the straw in their nest, to prevent the dung, with which they would otherwise soon be surrounded, from producing insects, which are very injurious to them, and sometimes so troublesome to the mother as to induce her to forsake her young. When we take young pigeons, or when they have left their nest, we should immediately clean it out, as well as the whole box, and place some fresh straw in it. We must keep every part particularly clean, carefully search out all those places which may conceal mites or bugs, or other insects, and destroy them by means of a small stick or brush, or even with boiling water. The dung must never be allowed to remain inside their dwelling, and we must also take the precaution of removing it to some distance. We should see that the floor is well swept, and as often as possible; but in performing this operation we must be careful not to raise the dust, for it is extremely sharp, and when the pigeons inhale it, it may carry into their throat and lungs seeds of incurable diseases.

We must always keep an abundance of wholesome food in their troughs; and rinse the water in their troughs two or three times a week, and in the winter we must be very careful that it does not freeze. Besides the water necessary for them to drink, it would be extremely useful, especially in summer, to give them a tub, as we have described for the dove-cot, so as to facilitate the wholesome pleasure of taking a bath occasionally.

To avoid quarrels, and prejudicial confusion, we must be very careful to take away all those birds which have not coupled. The uncoupled males especially, will cause a great number of unfertile eggs to be produced, by interrupting those which are coupled, and the females also will cause as much mischief, by enticing away the husbands. As soon as the young ones can feed themselves, they should be placed in a breeding-cage, and not taken back to the aviary until they have coupled.

Lastly, if we wish to stock an aviary all at once, we must do as we have described in the article on the dove-house, and be careful always to procure birds hatched in spring. Further, all the precautions laid down for the dove-house, suit equally well for the aviary.

(To be continued.)

DESCRIPTIONS OF PIGEONS.

SIXTEENTH RACE.

CARMELITE PIGEONS (*Columba carmelitana*).—They are very small, and low on the legs; the feet and claws are ornamented with very long feathers; a tuft at the back of the head; beak short, and smaller than that of the Turtle-dove; the under part of the body and wings almost white; the male and female resemble each other. These pretty birds are very fruitful, but the small size of their young ones causes them to be little sought after by those who prefer useful productions to graceful individuals.

COMMON CARMELITE PIGEON (*Columba carmelitana vulgaris*).—The shortness of its legs makes it appear as if it squatted; its cloak is iron-grey, fawn, purple, or light-grey. The feathers which cover the feet are always the same colour as the cloak; those on the legs are very long. It is very prolific.

YELLOW CARMELITE PIGEON (*Columba carmelitana lutea*).—It resembles the preceding, but the top of the head, the



wings, and their covering, as well as the feathers of the feet, instead of being grey or purple, are invariably yellow. It has the same fecundity.

SOLFATERRE ROSE.

IN reply to Mr. Beaton on flowering the Rose Solfaterre (in THE COTTAGE GARDENER on the 20th ult.), I beg to say I have had it to flower well for three or four seasons in succession. The first season I had it, I planted it under a low wall at the end of my greenhouse, where it flowered nicely, but I found it of too robust a habit the second season to remain, and removed and planted it against the front of my house (stone wall, a south aspect, and sheltered nicely both from the east and west winds). The soil is of a light nature, dark in colour, and I believe sometimes called black sand; I mixed some leaf-mould in the soil at the time of planting, and occasionally used manure water. It grew luxuriantly, and the second season after removing attained the height desired (ten feet to a parapet to the wall), and the last summer it was very beautiful, with nearly or quite thirty clusters of blossoms, from three to six and seven blossoms to each cluster, and the perfume at times delicious. I have raised a young one, which is now two or three years old, which had several blossoms the last summer; the end of May and beginning of June is the principal time of flowering, but I have had several stragglers during the autumn. The Rose Cloth of Gold will not flower with me; in short, I have had it five years, and it has not yet borne a blossom. It is against a south wall, but not protected as Solfaterre is; it has not grown so luxuriantly, nor had it so much leaf-mould mixed in the soil, still it is got to seven feet high.

J. HEMMING, Mickleton.

TO CORRESPONDENTS.

. We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London."

ALLAMANDA CATHARTICA—**DIPLODENIA CRASSINODA** (*A Son of Witless*).—Keep them in a temperature of 50° to 55° at night, and from 60° to fifteen degrees higher in sunshine, until towards March. Then gradually increase the temperature ten degrees more, and give plenty of moisture, especially to the *Allamanda*.

GESNERA ZEBRINA (*Ibid*).—The cause of this, and *Ipomoea Horsfalliae* dropping their flowers, in a temperature of 65° by day, and 50° to 55° by night, is partly owing to the time the plants have been in bloom, and the very dull weather we have experienced. Of the *Gesnera*, three weeks ago, we had fine specimens, but now there is scarcely a bloom, but the main stalks had been long beautiful. They all dropped in a day or two, and for no want of care. If not all gone, give them 45° at night.

CHARCOAL FOR AGRICULTURAL PURPOSES (*W. E.*).—"I have several hundred bushels by me; what land shall I apply it to, whether turnips or grass lands; what quantity per acre, and what time of the year?" Mr. Fish wishes that some agriculturist who has used it would answer this, as he has had no experience with charcoal on a large scale, and would, therefore, decline giving an answer, chiefly on that account, and also because, in an economical point of view, he doubts

whether, if the charcoal be really good, it would not be better to sell it, and purchase manure for turnips and grass land. Judging from his own limited experience, if it were not for the expense—and that should regulate all culture—he would have no hesitation in using it at the rate of from 50 to 100 bushels an acre, but the quantity, however small, would be beneficial. He would sow it, after being bruised, on grass land, any time before the growth of spring commenced; on turnip land, he would mix it along the furrows, and throw some on the surface after the plants were up. There is no soil for which it would not be suitable. Heavy lands it would render lighter, and, different from sand or chalk, it would not sink down so much in the soil. Chalky cold lands it would render warmer, by its blackness absorbing the heat; and dry open sandy soils it would render more retentive of moisture.

MANY QUESTIONS (Philantho).—The green shoots of last summer, and not old wood, are meant, under close pruning of *Scarlet Geraniums*, and when they are to be kept dry, the leaves are to be all cut. If you have room to keep them in pots, it is best to keep the leaves on, and you need not so many shoots than will make each plant appear in that shape which best pleases yourself. Keeping *Scarlet Geraniums* green in this way all the winter is the surest method, but it does not improve their flowering. Now, or any time before the end of February, will do to *prune climbing Roses*. If they are full-grown, our rule is to cut all the long shoots two-thirds of their length—that is, if three feet, cut away two feet, and so on; small shoots cut to four inches, and very small shoots cut quite close; and although it takes more time to fill a space by this way of pruning, it is, in the long run, certainly the best method for all of them. *Pentstemons* are best propagated at the end of August; the next best time is March; but young tops of them will root at any time from February to October.

WIRE-WORMS (Carrig Cathol).—The surest way to get rid of these creatures from your compost-heap is to stick it all over with the thick ribs of brocoli leaves, or the old stems of any of the cabbage tribe, slit in four pieces; carrots and parsnips would also entice them. The larger the slices are the better, thrust them into the soil all but an inch or so, and pull them out every third or fourth day as long as you find the wire-worms attached to them. Root has but a very temporary action, and would not remove them. Many thanks for the basket, it will be forwarded to Shrubland Park.

IRIAS (J. L. T.).—It is rather late now to pot *Irias*, *Sparaxis*, and *Persian Iris*; but if you can get good large sound bulbs of them, they will do yet, provided you let them stand in a cold pit, or some other cool place, for the first month or six weeks, so that they make plenty of roots before the leaves rise much. Your bow window will be too hot to begin them so late in the season. They would do in perfect darkness until the leaves appeared, but darkness is not essential to success. There are many more varieties of *Tulips*, *Hyacinths*, and *Narcissus*, that you have not got, but would still be in time to bloom late in your windows; but it is of little use now to give their names, call at any of the seed shops and see what they have on hand, and select the soundest bulbs.

BUDDING ROSES (A Subscriber).—They bud *Roses* from the end of May to the end of September. The first fortnight in June and at the middle of September are the best time to bud all the *Perpetuals*. Those first budded will soon push and make heads the same season; the autumn-budded do not push till next season. All the summer *Roses* may be budded in July and August. There are one hundred kinds of stocks that will answer just as well as the *100g Rose*, in some cases better. All the strong Hybrid *Chinas* make excellent stocks; but one of them called *Manetti*, is the one generally in use, and a most excellent one it is.

MELONS (Ibid).—The *Egyptian green-fleshed* and the *Trentham Hybrid* are the two best melons grown. The former has nearly a score of other names. When a man gets a fruit of it, better than the average, he directly calls it after himself or his place, and sends it to market in packets of seeds at so many for a shilling, or so many shillings for one seed, as the case may be.

EVERGREEN FENCE (W. X. W.).—You require a protecting hedge, five feet high, quickly. The *Chinese arbor vita* will suit you better than anything else. Buy plants five feet high, and plant them two feet apart, and the hedge is as you want the same day; but if that is too expensive, buy them from two to three feet high, and plant a yard apart, and in four years you will have just such a hedge as you need.

PERPLEXITY (Julius).—It is, indeed, very perplexing to trace out some plants from their various descriptions published, but it is often unavoidable, particularly when they happen to be new or little cultivated, as they turn out on acquaintance to be quite different from what had, at first, been expected. You may rely on the following, however: *Solanum jasminoides* has been grown as a greenhouse plant, and, of course, its growth was restricted there; but it is quite hardy on a south wall, if protected a little the first season or two. In a few years it will reach twenty or thirty feet high; indeed, none of us know how much wall it would cover if planted in a strong rich loam, but it is the fastest grower among all our climbers, and as pretty as any, flowering six months at a time; flowers pure white, but we have heard of a variety with purplish-blue flowers. *Tecoma radicans*, and *Tecoma grandiflora*, are two varieties of the same plant, the latter has the largest flowers and is the best of the two; both are deciduous, with red-orange flowers, very handsome free growers, but they should have a little protection the first year or two. *Jasminum nudiflorum* is nearly evergreen, has large, yellow, scentless flowers, which open on a south wall before Christmas, and go on to the end of March. In the open border they open, according to the weather, from January to March; it is a desirable plant.

MALTESE CROSS (A Constant Subscriber).—If your soil is good and rich, roses will look remarkably well in a bed shaped like the Maltese Cross. Round two opposite ends, say 1 and 2, plant the *Malmaison Rose*; a foot from the edge, and two feet or thirty inches from it, plant *Grand des Batilles*. Round 4 and 3 plant *Paul Joseph*, and *Proserpine*, alternately, only nine inches from the side, and a foot apart; inside them, and two feet from them, a row of the *Bourbon Queen*, or, if you like it better, that *Queen* and *Armosa* alternately. After that fill the rest with your own choice, or from the lists we are now publishing, but use no more than one-third summer roses. We would plant the whole with *Perpetuals* or *Bourbons* and Hybrid *perpetuals*.

BULBS (Ibid).—Bulbous *Iris*, *Trilliums*, and *Crown Imperials*, may be planted or transplanted in February; but it is not good practice. They ought to be in before the end of September.

ROSES FOR A NORTH-WALL (J. W.).—A wall forty yards long, and four yards high, with a direct north aspect, will not produce many autumn flowers, unless you were to plant numbers of the old common *China (Indica major)*, a fine old rose, but now out of date. Our *Noisettes* which bloom in autumn require a better aspect. Your best plan is to plant only those very hardy climbers from our recent lists of *Ayrshire*, *Evergreens*, and *Boursaults*. Then let every third plant be *Gloire de Rosamne*, to keep the bottom of the wall clothed. After two years, this rose will bloom freely in the autumn, and rise from five to ten feet high. *Madame Lafay*, *Fulgore*, *Baron Prevost*, and *Duchess of Sutherland*, might bloom, if you were to bud them on the evergreen sorts, five feet from the ground, and higher.

ASCLEPIAS TUBEROSA (J. B. H.).—This is a handsome herbaceous plant, with fleshy tuber-like roots, stems from eighteen inches to two feet high, carrying clusters of fine orange-blossoms, which last two months, from July to September. It would do better at the bottom of a south-wall, or front of a cottage, and requires a deep light border, with a very dry bottom. Let it remain in the large pot till next April, and then plant it without disturbing the ball; but better still, if you were to break away the whole bottom of the pot, and plunge the rest to two inches below the surface. The way to do that is this—set the pot a little to one side, on a bed of loose earth, then with a common hammer begin to tap on the edge of the hole, chipping away a little at a time. If the ball inside was hard, you might use greater force, but you will soon do it. The plant is one of our old special favourites, and we should like you to take good care of it, as it is a little miffy.

TROPEOLUMS (Ibid).—Let the seedling pots of *Tropeolum Jarrattii*, and *brachyceras*, go on as they are, to the end of next May, and give water as if you had old plants; also give supports. The rest of the seeds will appear next spring, and the whole will be ready to shake out, when the stems die down.

TROPEOLUM PENTAPHYLLUM (Ibid).—We do, and always did, recommend this neat and nearly hardy summer climber. Those who grow it in pots, ought to be brought before the Lord Mayor. A strong root and two planted in rich soil, under a south wall, will reach ten feet high in one season, and flower all the way, but for such a height it will not spread much. You may train it right and left, and keep the frost from the roots.

PYGMY PLANTS IN PYGMY POTS (Clericus).—Your baby plants in baby pots will require renewing as they grow too large for their pots. *Carli* should be taken out, cut shorter, and replanted in the pots in very sandy loam without manure of any kind. They should be kept dry till symptoms of growth appear, and then watered very moderately; a little shade whilst they are without roots will be desirable. Of the *Mesembryanthemums*, take cuttings off, and plant them, when rooted, in the tiny pots, nipping off their tops to cause them to grow bushy. The same kind of soil will suit. At no time drench either tribe with water; the object must be to just keep them alive and green, without stimulating them to grow too rapidly. Plenty of air in mild weather will do them service; and if in summer they can have half-an-hour's rain now and then, it would wash off dust and renovate health.

LAURELS TO COVER A WALL (Rusticus).—Now, or to the end of March, whenever the weather is open, will do to plant Laurels for covering a wall. See that the border is well dug, or trenched, and use young healthy plants about a yard high; plant them a yard apart, and they will soon cover a large space of wall. If you could water them in dry weather for the first season or two, it would make a surprising difference in their growth.

CUCUMBERS (D. I.).—The longest we know is *Duncan's Victoria*, it has reached to twenty-eight inches. *Earliness* depends upon the time of sowing. If you wish to know in which variety the least time elapses between the seed-sowing and the fruit being fit for table, we say the *Short Prickly*. You will see an answer above about *Melons*. *Cole's solid-stalked* is the best white *Celery*.

MOSS-GROWN PASTURE (A Country Subscriber).—Late in March is the best time for harrowing and sowing grass-seeds on this. A dressing at the same time with lime and coal-ashes will help to remove the moss. You may turn in your cow in May.

WORK ON FOREST TREES (H. J., Briston).—Main's *Forest Planter* and *Pruner's Assistant* will suit you.

WHEELBARROW DIMENSIONS (Nemo).—Some of the dimensions of Mr. Wells's barrow, omitted at p. 158, are as follows:—Length of handles, 2 feet; length from tip of handle to axle of wheel, 5 feet; length of body of the barrow at top, 2 feet 9 inches; diameter of wheel, 1 foot 9 inches.

NAME OF APPLE (An Old Subscriber).—Your apple is *Morris's Nonpareil Russet*, as described in Hogg's *Pomology*, the first section of which, forming a handsome useful volume, is now completed. We refer especially to this work, because the Morris's *Nonpareil Russet* is wrongly described in the Horticultural Society's Catalogue.

PEARS ON QUINCE STOCKS (South Wales).—If your pears are on quince stocks, which we doubt, since they make shoots three feet long, cut the year's shoots back to four, or at most six, buds, and reduce the roots to a foot in length all round. At the end of August, or very early in September, in future years, cut back the year's shoots to four buds, and thrust a spade down at about eighteen inches from the stem all round.

FOOD REQUIRED BY POULTRY (H. X. W.).—An author on poultry allows a quarter-of-a-pint of grain to each full-grown fowl. I find twelve fowls eat three pints of corn per day, besides a dish of potatoes and a quart of middlings made into porridge. These have the run of a small orchard for a few hours each day. They are of the *Cochin China* breed, and are in excellent condition.—*Anster Bonn*.

DISEASED APPLE (A Young Gardener).—This, and you say the entire crop, has the pulp of the apple full of small decayed spots. This is not uncommon if the tree is very old, or in ill-drained ground, or if any other

cause renders the elaboration of the juices defective; but you give us no particulars whereby we can point to the probable source of the mischief.

COW SLINKING HER CALF (J. T. P.).—This, which in other words is premature delivery, may arise from one of many causes. Too much or too little food, sudden fright, sympathy with certain smells or sights, such as those of blood, bones, horns, or the dead young of another animal, a very hot, foul cow-house, falls, bruises, and over-driving, will one and all cause abortion in the cow. Let all such be avoided. If you perceive symptoms of a recurrence of the misfortune, remove the cow instantly from the company of the other cows. If the cow is in good case, and restless, and the calf alive, bleed her, and give a pound of Epsom salts in a quart of warm water. When this begins to operate, give her half a drachm of opium, and half an ounce of sweet spirits of nitre. On no account give stimulating drinks, unless the cow is weak. Bleeding at any stated time is folly.

PLANTS AT THE CRYSTAL PALACE (J. V.—, Salcombe).—These were taken away by the nurserymen who exhibited them. The reason for their not being finer, was the difficulty of attending to them. You should have gone to Kew Gardens, and to the chief nursery grounds near London, to see fine specimens.

NAMES OF PLANTS (S. H. J.).—The fleshy-leaved, is *Hoya carnea*; the long narrow-leaved *Nerium oleander*, or Common Oleander. The sprig is of the Lignum Vitæ, *Thuja occidentalis*. We cannot name the *Cactus* from such a specimen. Yarrow is in *The Cottage Gardeners' Dictionary*. See *Achillea millefolium*. (W. M.).—1. Not certain. 2. Rosalind. 3. Queen. 4. Not certain. 5. Adventure. 6. Unique. 7. *Celestina ageratoides*. 8. *Manulea pedunculata*. 9. *Lobelia fulgens*. 10. *Cotyledon orbiculata*. 11. *Plectranthus fruticosus*.

DISEASED LAUREL (R. Smith).—Your laurel with leaves almost totally blanched, we think must be in a dying state. You may try what uncovering its roots, and putting to them some rich manure will do. If it dies, put fresh soil there before you plant another.

NAMES OF PEARS (J. S.).—The green pear is *Glout Morceau*, and the other is *Foelle*, one of the most beautiful, and when in season, one of the best dessert pears we have. The tree is very hardy, an abundant bearer, and ought to be grown more extensively than it is.

CALENDAR FOR JANUARY.

ORCHID HOUSE.

AIR. In this first month of the year we frequently have severe frosty nights, and clear, bright, sunny days. The heat necessary to keep out the frost, and the bright sun, will raise the temperature of the house too high; to lower it to the right pitch air must be given, and the apertures to give air ought to be so placed that the cold air does not rush in directly upon or through the plants. The best place for the openings is directly opposite the pipes, the air then becomes heated in a degree before it reaches the plants. Blocks: plants on these will require attention; any that are loose should be refastened; cleanse the leaves and pseudo-bulbs from green scurf and all kinds of insects. **CYTOPODIUMS**, see to; if any fresh growth is observable, repot in a rich compost. **DENDROBIUMS**, remove into a cool house; such as show growth may be potted and kept moderately moist. **HEAT**: keep both the houses to the lowest point of heat for the first half of the month; as the days lengthen allow the heat to increase a few degrees. **INSECTS**, continue to destroy. **MOISTURE**: on sunny days sprinkle the walks, walls, and pipes two or three times a day. **POTTING**, continue to perform upon all orchids beginning to grow. **SOILS**, procure; such as fibrous peat and turfy loam; lay them in a place to dry, to be ready for the general potting next month. **SORALIAS**, place in a cool house; heat, 55° by day, and 50° by night; cut down all the shoots that flowered the preceding summer, to allow room for the young shoots; keep them quite dry while at rest. **SYRINGA** blocks as directed last month. **WATER** at the roots, apply carefully; do not wet the young shoots. T. APPELEY.

PLANT STOVE.

See last month. Prepare a hotbed, &c., to strike cuttings in. Turn *lan-bed*, and renew the heat by adding fresh bark. Pot a second batch of *Achimenes*, *Gesneras*, and *Glorinus*, to succeed those done last month. Give moderate supplies of water till they begin to grow. The heat of this house must still be kept low, as too much excitement will, for want of light, cause the plants to grow weak, and the young leaves to come yellow. Seeds of stove plants, sow, &c., giving only one watering till they begin to appear. Hard-shelled seeds steep in water heated to 180° or 200°; leave them till the water cools. T. APPELEY.

FLORISTS' FLOWERS.

AIR. Whenever the sun overcomes the frost draw off the lights, it will refresh the plants much; if kept on, the plants will begin to grow, and will be more liable to suffer from close covering during severe weather. In dull, humid, mild weather, give air at the back or sides by tilting up the lights. **APRICULAS** and **POLYANTHUSES**, dress off decayed leaves; search for slugs in the frames and under the pots. As the frost in this month is often very severe, apply coverings of sufficient thickness to keep it out; light, open material, such as fern or straw, with a single mat over it to prevent it blowing about, is better than a covering of three mats laid close upon each other. **HOLLYHOCKS**. Should the weather be open, plant them out. If not already done, the sooner this is done the better chance there is to have a good bloom. Use hoops and mats over the *tulip* and *Agaric* beds in severe frosty or heavy rainy weather. **PINKS**: after the frost is gone press the soil to with the hand firmly, or they will be thrown quite out of the ground. **RANUNCULUSES** may be planted, weather permitting, the last week in the month (see former number of THE COTTAGE GARDENER as to the manner); water, give none in frosty weather, but as soon as a change takes place apply it early in the morning of a fine day. **VERENAS**: give air to; trim off decaying leaves and mould; stop such as are growing and drawing up weak. T. APPELEY.

FLOWER-GARDEN.

ANNUALS in borders, keep free from fallen leaves or other litter; and, if the weather is fine, sow a few more at the end of the month. **BULBS**, see that mice or rats do not get to them: fresh soot keeps them off for awhile. **CUTTINGS** of various hardy deciduous shrubs, climbing roses, and the like, may yet be put in. **EDGINGS**, see that they are in good order; slate edgings are the best, then box: either may be laid this month. If the soil is dry at the end of the month, plant some **GLADIOLI**, such as *Poittactus*, and continue in monthly succession to the end of April. Forget not to procure such *stakes*, *rods*, *pegs*, and *tallies*, as may be wanted next summer, in time. Destroy *rats*, *mice*, and other creatures destructive to seeds and roots. Again look at the protected plants, to see they are dry. **GRASS**, keep it clean and well rolled. **HEDGES**, evergreen and otherwise, may yet be planted and dressed. **LAYERS** of evergreens or deciduous shrubs may be made as the borders are cleaned. **MANURE**, in composts, apply to such flower-beds as may require assistance; and in a solid, rotten state to all roses. **MULCH** all newly-planted trees, &c. **POTTED PLANTS** in reserve-garden secure from frosts. **PLANTING**, push forward in mild weather. **PAVET**, make cuttings of the young shoots for increase. **PRUNE** and regulate every tree or bush which requires it; be more sparing with evergreens. **RANUNCULUSES**, if the soil be dry, plant a lot for another succession. **ROSES**, prune, plant, and dung, if not already done; protect *Tea* and young *Bourbons*; and wash them with strong lime and soot paint, to kill moss and insects. **SEEDLINGS**, and all young plants, protect according to their hardihood and strength. **SUCKERS**, pull up and destroy, unless wanted for increase, as those of some roses, &c. **TRENCH** vacant ground. **WALKS**, roll as soon as they are dry, after rains or frost, and keep them regularly cleaned. **WEEDS**, destroy everywhere. **WHEELING**, reserve for frosty or very dry weather. D. BEATON.

FORCING HOUSE.

AIR: see *Ventilation*. **ASPARAGUS**, provide succession; give plenty of water and air to crops up. **BOTTOM-HEAT** may be on the rise slightly after the middle of the month; for the present, 70° to 75°. **CUCUMBERS**, get on the early frames; above all, secure a sweet heat; use linings liberally, and often turn them; those in boxes train regularly, top-dress, &c. **CHERRIES**: see *Peach*. **COVERINGS**, apply, in order to be able to ventilate; apply also to vine borders. **FINES**, regulate with caution; do not attempt high temperatures until more light; beware of night heat. **FIGS**: see *Vines*; those in pots love a little bottom-heat, and liberal waterings. **GRAPES**, late, thin frequently; keep a dry and cool air. **INSECTS**, attack unrelentingly. **KIDNEY BEANS**, continue successions; keep a moist air temperature of 55° to 65°; use liquid manure. **LIGHT**, secure under all glass by clean washing. **MUSHROOM BEDS**, provide succession; keep a moist air at 50° to 55°. **PEACHES**, bring on steadily; give plenty of air; increase warmth to 60° when in blossom, to be able to air freely; shake the trees in bloom daily about noon. **PINES**: early fruiters will require more water after the middle; late fruit dry at root, but syringe heavily about once a week; water tan, and stir it with a stake; use strong linings to dung-pits, so as to give air very freely. **STRAWBERRIES**: it is now a good time to introduce plants; keep them near the glass; attend to watering, and let the temperature be 50° to 60°. **VENTILATE** liberally; thermometer out-doors, watch; let your inside heat rise and fall as that outside moves. **VINES** in leaf, 60° to 70° by day; attend to border covering; keep a warm and dryish air when they are in blossom, with regular air. **WATER**, use in a tepid state, frequently wetting floors. **WASH** foul leaves by sponge, &c.; if *Scale* appears, employ soap-suds. R. ERRINGTON.

ORCHARD.

ALMONDS, plant. **APPLES** (espalier), prune, &c.; plant, &c. **APRICOTS**, plant. **BIRCH**, apply with a scrubbing-brush to stems and branches of fruit-trees, to destroy insects, eggs, and moss. **CHERRIES** (wall and espalier), prune and train; plant. **CHESNUTS**, plant. **CURRENTS**, prune; plant. **CUTTINGS** of gooseberries, &c., may be planted. **DRAINAGE**, attend to. **ESPALIER**s, prune and regulate. **FIGS**, protect from frost. **FILBERTS**, plant. **FORK** the surface around fruit-trees. **GOOSEBERRIES**, plant; prune. **LAYERS**, plant. **LEAVES**, collect for various uses. **MEDLARS**, plant. **MULBERRIES**, plant. **MULCH**, put around newly-planted trees. **NECTARINES**, plant; prune and train in frosty weather. **PEACHES** (see *Nectarine*). **PEARS**, plant; (espalier) prune, &c. **PLUMS**, plant; (wall and espalier) prune. **PRUNING**, attend to generally. **QUINCES**, plant. **RASPBERRIES**, plant; prune and dress. **SERVICES**, plant. **SNAILS**, destroy in their torpid state. **STAKE** and support trees newly planted. **STANDARDS**, remove dead and irregular branches from. **SUCKERS**, plant; eradicate from fruit-trees. **STRAWBERRIES**, top-dress and protect. **TOP-DRESS** borders where exhausted fruit-trees are. **TRENCH** and prepare borders, &c., for planting. **VINES**, prune and train. **WALL-TREES** generally, prune and regulate. **WALLS**: it is a very beneficial plan to paint these, by means of a whitewasher's brush, with a liquid mixture of lime, soot, and sulphur—1 lb. soot, 2 lb. sulphur, and 2 lb. lime. It destroys and banishes insects, as well as by its dark colour promoting the warmth of the wall. The liquid employed, in which to mix the above, should be urine and soap-suds, in equal proportions.

Any trees proposed to be regrafted in the spring may be headed down now in open weather, but the stumps of the branches should be left sufficiently long to permit a few inches more to be cut off at the time of grafting. R. ERRINGTON.

GREENHOUSE.

AIR, admit at every favourable opportunity, whenever the temperature outside is above 35°, except in windy or foggy weather, especially among heaths, epacris, and azaleas that you do not wish to bloom early. In foggy weather, though warm, it will be advisable to put on a little fire, to change the visible to invisible vapour. If the fog was of short continuance, and could be kept out of the house, air might be dispensed with, as well as fire, though it should not be forgotten that the motion given to the air by a little firing is a great security for the health of the plants in dull weather. Soft-wooded plants should be kept at one end of

the house. **BULBS** and hardy **SHRUBS**, such as lilacs, azaleas, and roses, introduce from the forcing-house, placing them at the closest and warmest end of the house; **calceolarias**, **cinerarias**, **geraniums**, and Chinese primroses, clean, shift, and supply at times with manure-water. **CAMELLIAS** and **CYPRIPEDS** opening their buds, supply with manure-water. **CLIMBERS**, prune in, if not already done, those that produce their flowers on the young wood; others, such as *Kennedya*, now flowering and growing, attend to; and especially train, every day, the *Tropeoliums*, if you wish to prevent confusion. **FIRE**, light in close, dull weather, to enable you to give a circulation of air. Beware of heating too much when frosty, as, without due precaution, the atmosphere will be too dry; it is better to use coverings for the glass. **FUCHSIAS**: the forwardest may now be pruned and repotted. **GERANIUMS** and **CINERARIAS** will, in all likelihood, want cleaning and fumigating. The first may now be repotted for late May and early June blooming, and the latter must be shifted and kept growing, so as to prevent them throwing up flower-stalks, if late bloom and large specimens are desired. Where room is limited, a fine display is obtained by successions, and using not larger than six-inch pots. **ROSES** in pots, for April and May and June blooming, in the greenhouse, finish pruning; wash with a paint of soot, sulphur, and clay; top-dress with rich compost; and plunge, if possible, in a house or pit—sawdust will be a good material—and give at first a temperature of 40° to 45° at night, and from 45° to 55° during the day. **SUCCULENTS**, unless growing and showing flower, refrain from watering. **WATER** plants only when requisite, and perform the operation after breakfast, using water rather higher than the medium temperature of the house. Place a few *achimenes*, *geniera*, and *gloxinia* roots into heat for early blooming. In a conservatory or greenhouse, where no hard-wooded plants to speak of are grown, and where a medium heat of 50° can be maintained—that is, 45° at night, and 55° during the day—*Poinsettia pulcherrima*, *Euphorbia prunifolia*, &c., may be introduced from the stove. (See Calendar of last month.)

R. FISH.

KITCHEN GARDEN.

ARTICHOKES, attend to, shelter, &c. **ASPARAGUS**, plant in hotbed; attend to that forcing; temperature about 65°, and at night 50°. **BEANS**, plant, b.; earth-stir among often; advancing crops protect from frost; plant in hotbed, if required. **BEST** (red) plant for seed. **BROCOLI**, protect from frost. **CABBAGES** plant, c.; sow, c.; plant for seed. **CARDUONS**, attend to, shelter, &c. **CARROTS**, sow small crop; plant for seed; (early Horn) sow on gentle hotbeds, fill the frame up well with earth, so as to bring the crop up close to the glass; attend to early thinning out and earth-stirring with a little pointed stick among all frame crops. **CAULIFLOWERS** in frames, attend to protection from frost, and give all open air possible in open weather, by taking the lights entirely off; also hand-glass crops, clear away all decayed leaves and slugs, and earth-stir often; if young plants are required, a pinch of seed may be sown in pans, and placed in any heated structure, but have a gentle hotbed made up ready

to prick them out upon, keeping the young crop up close to the glass. **CELERY**, earth up, shelter, &c. **COMPOSTS**, prepare and turn over. **CUCUMBERS**, sow and prick out; temperature, by day 70° to 75°, and at night 65°. **DUNG**, for hotbeds, prepare in earnest; wheel on to vacant ground. **EARTH** for hotbeds, prepare. **EARTH-STIR**, and fasten plants disturbed by frost, &c. **ENDIVE**, blanch, protect. **FROST**, protect plants from, by temporary covering. **GROUND**, trench vacant. **HORSE-RADISH**, plant at any time during the month in open weather. **HOTBEDS**, make and attend to. **JERUSALEM ARTICHOKES**, take up and replant in open weather, at any time during the month. **KIDNEY-BEANS**, sow in succession in hotbed, &c. **KALE** (Sea), attend to; force in succession. **LETTUCES**, in frames, attend; protect from frost; sow on warm border, c. **LIQUORICE**, plant, c., and dig up three-year-old. **MELONS**, sow, for fruiting in May; day temperature 75°, night 65°. **MINT**, force, in hotbed. **MUSHROOM BEDS**, make, and attend to those producing; procure horse-droppings for. **MUSTARD** and **CRESS**, sow in hotbed. **ONIONS**, clear from weeds; examine stored; sow a small crop, c.; plant for seed. **PARSLEY**, sow, c.; protect from frost. **PARSNIPS**, plant for seed. **PEAS**, protect from birds by straining a single string of worsted along over the row; attend to the early pea sowing as near the first of the month as possible. It is a good maxim to always have a mouse trap or two set about the pea quarters. Sow; earth-stir; shelter from frost; and prepare sticks. This is a good season for making main sowings of early and second early peas where the soil works well and the weather is open. **POTATOES**, plant in slight hotbed; and they may also be planted out in the open border, or quarters, in fine open weather, where the soil works well. Examine those in the store. **RADISHES**, sow, in hotbed; thin out as soon as the plants can be handled, and sift a little dry earth among them; sow in border, c. **RAPE** (for salading), sow in hotbed; (edible-rooted), sow. **REUBARS**, attend to; force, either in pots, to be planted in some heated structure, or covered up with pots or tubs and fermenting materials. **SALADING** (Small), sow. **SAVOYS**, plant for seed. **SPINACH**, keep clear from weeds, and fallen leaves; make a small sowing toward the end of the month. **TANST**, plant in hotbed. **TARRAGON**, plant in hotbed. **TURNIPS**, plant for seed; should the weather seem inclined to set in severe, store in a good supply, or heap them and cover them over with coal-ashes. **WEEDS**, continually destroy, and do any work which will lessen that of the following busier months; in particular, such as planting all the main out-door crops of potatoes, wherever the soil will allow of it, and the weather is favourable. **WOOD-LICK**, destroy in the mushroom-house by trapping under dry hay, and scalding it in hot water; or by baiting small pots with boiled potatoes, or slices of potatoes under dry moss.

T. WEAVER.

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WEEKLY CALENDAR.

M. W. D. D.	JANUARY 1-7, 1882.	W ^h ATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
		Barometer.	Thermo.	Wind.	Rain in In.						
1 Th	CIRCUMCISION.	29.707—29.646	54—51	S.W.	02	VIII	IV	1 m 39	10	3 37	1
2 F	Gray Wagtail seen.	29.801—29.707	53—43	S.W.	—	9	0	2 37	11	4 5	2
3 S	Mazereon flowers.	29.949—29.831	46—35	N.E.	56	8	1	3 46	12	4 23	3
4 SUN	3 SUNDAY AFTER CHRISTMAS.	29.846—29.648	47—39	S.	02	8	2	4 56	13	5 1	4
5 M	Hedge Dunnock sings.	29.554—29.512	47—34	W.	—	8	3	6 7	14	5 28	5
6 Tu	EPHRAIM. Twelfth Day.	29.581—29.520	45—31	S.E.	—	8	4	7 13	15	5 55	6
7 W		29.560—29.447	47—37	S.E.	03	7	5	rises.	☉	6 21	7

In August last, as we told at page 399 of our sixth volume, we threaded the green lanes of Silkestead, near Winchester, in search of traces of old John Taverner, who, five half centuries ago, told of his experiments on "Fish and Fruit." There being no church at that reclusive hamlet, and its "rustic dead" having from time immemorial passed to dust in the churchyard of Hurstley, towards this last-named village we continued our pilgrimage. We sought vainly for any notice of Taverner, or of his connections, in the church registers, but we were rewarded by finding ourselves among the records of the *Cromwells*. Strange records these, speaking with trumpet notes of the instability of human dignities, and warning us that they who build upon an unjust foundation must fall, or by continued injustice maintaining their place, must, in the words of Solomon, like other transgressors, "eat violence." It was so with Richard Cromwell, the second Protector, whose burial stands thus recorded in this simple village register—"Richard Cromwell, Esq., was buried 18th of July, 1712." If we knew not the fact, could we suspect that the subject of this record once sat upon the throne of England? Yet sit there he did, and as he was mild and pious, he rises in somewhat disadvantageous relief above his legitimate and more permanent successor—Charles the 2nd. He fell by the violence to which he would not resort for support.

In 1784, there was living in Hurstley, one Peter Colson, who remembered the ex-protector well, told anecdotes of his hunting, and of his domestic habits, and who carried a torch at his funeral. The reason for so many of the Cromwells resting in Hurstley church, is found in the fact, that the adjoining Manor of Merdon came to Richard Cromwell in right of his wife, who was Dorothy, the eldest daughter and co-heiress of Richard Major, Esq., of Southampton. It is stated that she was a woman of piety, and there are many evidences of her charity; yet she never saw her husband after he fell into adversity, but continued to live in competency at Hurstley, whilst he resided in less affluence, and died at Cheshunt, in Hertfordshire. Even his daughters endeavoured to exclude him from Hurstley, and the warning he gave them with his dying breath, should have been felt as one of rebuke—"Live in love. I am going to the God of love." In the chancel of Hurstley church is a monument to the memory of one of those daughters, "Mrs. Elizabeth Cromwell, spinster, who died the 8th day of April, 1781, in the 62nd year of her age." The epitaph includes, as a kind of appendix, an enumeration of the deaths of all her brothers and sisters, eight in number, and among them we noticed this:—

Mrs. Dorothy Mortimer, a seventh daughter, wife of John Mortimer, Esq., died 14th of May, 1681, in the 21st year of her age, but left no issue.

Now, this led us to remembrances of many by-gone years, and to the subject of the present notice. In those years how often have we wandered among and admired, the stately cedars planted by that JOHN MORTIMER, and how did we regret to see the woodman's axe bring thundering down those aristocratic ornaments of Toppingo Hall. Mr. Mortimer planted them about the first year of the 18th century, and they were giants when we knew them, in the hundred and thirtieth year of their age. He thus alludes to them in his *Whole Art of Husbandry; or the way of managing and improving land*, of which the second edition, dated 1768, is now before us:—"It is a great pity the cedar is not more propagated among us, being so easily raised, and a tree that will grow so well with us. I

have raised several of them of cones I had from Lebanon, and have now a walk planted with them. The seeds may be brought from the furthest part of the world in the cones, for I had some two years old that grew as well as those that were brought me direct from Mount Lebanon, and I am apt to believe, if they were kept in their cones, and not taken out till just you sow them, they may be kept for three or four years without prejudice. They delight most in a rich, dry soil, but they grow very well with me in *Essex*, both on the hasty brick earth, and on gravel that hath something of good mould about a foot deep on the surface of it."

This John Mortimer was a merchant on Tower Hill, London, descended from Mark Mortimer, of Somersetshire, and would have been a large landed proprietor, if his paternal estates had not been destroyed by an inundation of the sea. He was fond of agricultural pursuits, and in 1699, became possessed of an estate in *Essex*, Filiole, or, as it is now called, Toppingo Hall. He had three wives, and his second son, *Cromwell*, by his third wife, was a physician, and secretary to the Royal Society. Mr. Mortimer was an ingenious man, but injured his fortune by his agricultural experiments. He much improved Toppingo Hall, where grew the beautiful cedars of which we have made mention. He was a Fellow of the Royal Society, and wrote several pamphlets on religious education, besides the volume we have already noticed.

This work was approved of in the age in which it appeared, and was even translated into the Swedish language, and published at Stockholm, in 1737. The first portion is devoted entirely to agriculture, and of its merits we shall not hazard an opinion. The second portion is devoted to planting, arboriculture, and gardening. It is terse and superficial throughout, tinged with some vulgar prejudices; yet it contains much that was evidently the result of his own experience. He gives no lists of varieties of any of the kitchen-garden plants. Of apples he enumerates about 110—pears, 138—cherries, 32—plums, 71—apricots, 5—peaches, 47—nectarines, 16; of others few or none, and the directions for cultivation are slight and imperfect. His descriptions of greenhouses are grossly deficient, and would convey the information that glass was not employed in their construction at the time of publishing the fifth edition. He even advocates the warming them by open fires in holes sunk in various parts of the floor. He dismisses the cultivation of the potato in ten lines, more than four of which are occupied by the following observations—"The root is very near the nature of the Jerusalem Artichoke, but not so good or wholesome. These are planted either of roots or seeds, and may probably be propagated in great quantities, and prove good food for swine."

There are many good suggestions, such as basining-up, instead of earthing-up plants, so as to retain the moisture about their roots, and facilitating the process of watering. His work also first suggested to us the utility of forming a vocabulary of the older names, by which our cultivated crops were known, and which, long forgotten, frequently lead to the interpretation of many difficult passages in our ancient literature. For instance, Chards were called *Custons*; and Nasturtiums, *Capuchin Capers*; but what were *Maches* or *Masketts*?

METEOROLOGY OF THE WEEK.—At Chislewick, from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 41.3° and 30.1° respectively. The greatest heat, 54°, occurred on the 6th in 1845, and the lowest cold, 6°, on the 7th, in 1841. During the period, 104 days were fine, and on 64 rain fell.

In a very quiet village in the county of Suffolk, lived an old gentleman, who on every New Year's morning, whether it was in rain or sunshine, led his grandchildren into the garden, and made each of them follow his example in rooting-up a weed, and always ended the ceremony with: "There—we have begun the New Year well—we have each made a weed less in the world." It was an innocent and suggestive custom;—it has clung to the memory, and has become a household proverb among his descendants, and when we heard it observed the other day—"I fear Tom did not root up a weed on New Year's day," we knew that Tom had been "sowing wild oats," and that his kit and kindred had sat round our old friend's Christmas fire.

May every one who reads this our New Year's opening page, cut down a weed somewhere on this day; that weed may be a sorrow in some neighbour's heart, or a sin or a folly that disfigures his own, and each one

that does this, may say—realizing the moral of our old friend's lesson—"There: we have begun 1852 well; there is one weed less in the world."

We have endeavoured to do so, even in the pages of *THE COTTAGE GARDENER*; the little that has been suggested as a blemish has been corrected—so here we hope there is "one weed less;" but we have also made an effort to do more, by adding new features of interest. At present we shall only point to "Our Native Flowers," and to the communication of the Rev. E. S. Dixon, the favourably-known author of "Ornamental and Domestic Poultry," and whose essays under the signature of D, to day, and in future, will enrich our pages.

At this season, by altering and adding to their rules, our various Horticultural Societies endeavour to have "one weed less;" and upon this topic we have received the following from Mr. Glenn, whose long experience entitles him to attention.

"Provincial Horticultural Societies would do well to consider, that when making out their schedules of prizes, they should lose sight altogether of persons, and neighbouring gardens and collections, and frame their rules to meet general stocks. The bane of provincial shows, and we have one London show much after the same plan, is the attempt to make prizes for particular persons. Hence, it is as common as A B C, to find one-third of the prizes run away with by persons unopposed, and with plants scarcely worth the room they occupy on the table.

"There should always be more prizes for the collections of plants, because everybody would compete somehow; and the prizes for specimens should be unlimited in number, because the judges ought to be able to award something to all well-grown specimens, and everybody who had a remarkable plant would show it; while under the chilling announcement of one or two prizes only, none but a leading man or two will try for it. The Leamington Spa people never had such a show of specimens since, as they had when the judges were at liberty to award prizes to every specimen of merit, and if part of the money that is squandered at shows among subjects of neither use nor ornament, were devoted to the encouragement of specimen plants, everybody who had a scarce, or rare, or large plant, that would help a show, would be sure to produce it.

"Again. Those plants which cost nothing, yet exhibit the skill of the gardener, are generally very much neglected. Balsams, Cockscombs, and Hydrangeas, and hardy annuals in pots, are never properly encouraged, because, if only two or three prizes are given, only two or three who have ample means will try for them; so that instead of having a dozen competitors, which there might be, there are frequently but two or three unopposed, who, *knowing they are unopposed*, make no effort to do more than just entitle themselves to the prize, whilst at the same time we find such trumpery things as Marigolds shown in dozens of boxes, when one cottager's bed, that he would sell for a shilling, would fill every table in the room; and among other positive difficulties, is that of deciding which box of blooms contains the most bad ones or good ones, and a lottery for the prizes would be as good as the very best judges, except, perhaps, so far as one or two of the best collections may go. Beyond these, it is all nonsense to give anything, because there is nothing to deserve it.

"In a neighbourhood where there are, perhaps, two people who have stoves, prizes are given for stove plants, and generally they are discreditable; whereas, if they were obliged to compete in a class of the best twelve plants of *any kind*, they would be afraid to put up half their stove plants, because they would be beaten by greenhouse specimens.

"Where florists' flowers are exhibited, there should be numerous prizes, and the gradations of all prizes, from the highest down to the lowest, should be very small, because there is seldom a great difference in the quality, and men should be taught to value rank more than

amount. Class showing should be adopted, wherever it is practicable, because a flower then stands on its own merit; whereas, in collections, bad ones counteract good ones, and it is quite possible to have some better flowers in the losing stand, than the best in a winning one, because the bad ones disqualify them. Exceptions may be made, because collections are so effective, but men must not grumble at being placed low if they have a bad flower. A dead flower will condemn eleven good ones, unless the societies establish a rule that *the stands which have the greatest number of good flowers* shall win, without any reference to the bad ones. In drawing a schedule for a public show, it must be considered:—

"What plants, flowers, or subjects, produce the greatest effect, and deserve most encouragement.

"What prizes encourage the greatest number of exhibitors, and therefore increase the show.

"What prizes will most advance the interest of the science among all classes.

"No respect must be paid to A. B. C. or D., who have particular things to show."

"Cottagers should be encouraged with many prizes, for really useful vegetables, but certainly not for flowers. Their taste for these will make them grow all they need; but potatoes, onions, cabbages, carrots, parsnips, lettuces, savoy, red cabbages, &c., are food, and cannot be too much cultivated.

"In our visits, as judge, to forty exhibitions last summer, it was often a subject of regret, to see ten or a dozen baskets of magnificent potatoes go unrewarded, when half-a-dozen trumpery Pinks—over which the grower had wasted more time than would be required by a rod of cabbages—had a prize. Nobody likes better than we do to see a cottage-garden neat and well stocked with flowers, as well as vegetables, but no friend of a poor man could wish him to waste time on the *extra care of flowers to show*. There may be a difference of opinion, but we have determined that *we will not judge cottagers flowers*, although we should be delighted to add three or four prizes to each class of the useful vegetables. We view in the same light the waste of prizes for fruit grown by cottagers, because they never go to the poorest, nor to the most industrious, but to him who happens to have trees ready to his hand. We would liberally reward the industrious cultivator of what affords comfort to a family, but though for his own fancy he may grow luxuries, we would never bribe him to it."

GARDENING GOSSIP.

WE hear that *Mr. Fortune* is writing another book on China and the Chinese. He experienced no difficulty whatever in procuring as many plants of the tea shrubs as he could safely remove, for the East India Company.

The Chinese have hitherto entertained the idea that they are so far in advance of all the nations of the earth in the arts of civilized life, that they scout the idea of any competition in the trade in tea, and those of them with whom *Mr. Fortune* had to deal about his consignment, no doubt thought him a barbarian indeed, but we must not anticipate his own version of these transactions further than to remark

that, if the Russians or Persians were the sole possessors of the tea plant, Mr. Fortune would have a very different tale to write were he fool-hardy enough to go among them to select and purchase for a powerful rival.

We are informed by Messrs. Weeks and Co. that *Nymphaea cerulea* was in full flower in their open, heated pond, December 19th, at their Nursery, Chelsea.

We cannot too often remind our readers of the *Royal Botanic Gardens at Kew*, for even in the fine days of winter they are the most delightful of places for a stroll; and not only their hothouses, but their museum is full of amusement and instruction.

So rapidly do the contributions to the museum increase, that it has been necessarily enlarged, and still it cannot contain the treasures waiting for arrangement there, but this we hope will soon be otherwise, for we think the country would not grudge any reasonable outlay upon such an institution. The gardens have also been enlarged by adding to them the grounds held by the late King of Hanover.

The first number of the *Floricultural Review*, edited by Mr. Slater, of Cheetham Hill, near Manchester, made its appearance on the first of the month. There is a useful paper in it, showing the different names under which the same florists' flower has been imposed upon the public.

The *South London Floricultural Society's General Meeting* came off without any particular demonstration upon the subject of the late squabble among florists, except that on the proposal to re-elect the floral editor of the *Gardeners' Chronicle*, which was supported by a few members of the National Society, only ten hands were held up. The Society comprises considerably above 200 members, but, with the greatest possible good taste, this significant vote was the only notice taken. Mr. Lochner, who was unfairly supposed to be a supporter of Mr. Edwards, without reference to propriety or impropriety of conduct, did not vote for his re-election.

Considerable surprise has been manifested by persons who watched the proceedings of the South London Floricultural Society. That of two persons, one showing the other's flowers: the one was excluded from the committee and the other admitted. This, however, all depended upon the opinion that many had formed, that there might not have been any guilty knowledge on the part of the owner, who was not present when the flowers were alleged to have been taken.

The following extract from a letter received from France, shows the correctness of our notions upon the effect of selling bad flowers with good characters.

"From what we have heard here of the *Scarlet King Dahlia*, I should be glad of a dry root if it could be had, but to tell you the truth, we have been so robbed by the favourable opinions given in your garden newspapers and periodicals, that on this side of the water we have determined to wait until the second year for everything, and it is far better to lose a year's advantage of a good thing, if we save buying the good-for-nothing; and among our temptations, that of getting the best for a fifth of the price the second year is not the least. The professional florists in England are rapidly destroying their trade in new flowers."

If this sentiment prevails abroad there will be no small difference in the returns from Belgium, France, Holland, and Germany, for they have been large believers in certificates and printed praises, and, therefore, have been great sufferers. We have referred the party to the proper quarter about *The King*, which, however,

is, we understand, too short in stock to let out other than in plants, some of the roots having perished. With regard to the general question of prizes and certificates, people will do as they like; the enthusiastic florist will, in spite of ill-usage, risk anything rather than miss a really good plant the first season. But what a reproach must some of the nurserymen feel when they look back upon the blanks which most of the amateurs have drawn in their lottery of novelties. How any man can boast of the confidence with which he sends out new plants, and warrant rubbish, year after year, seems not a little astonishing to thinking men; yet we meet them, and hear their complaints of declining trade, just as if they were not the sole cause. Not a season passes without their performing the part of the covetous man, who cut up his goose for the golden eggs, that is, for the sake of a little present gain, they disgust customers who, if well used, would continue buying.

BRITISH WILD FLOWERS.

"Nor are the plants, which Britain calls her own,
Few, or unlovely."

So wrote Mason in his poem of "The English Flower-Garden," but he might have risen above such negative praise, and said they have very many among them of the beautiful, the fragrant, and the useful. To give the history of these, and by describing each British flowering plant, to enable our readers to detect such as they meet with in their rambles, will be the purpose of these papers. We shall present them in their Natural Order, and then, by giving an index according to the Linnæan system, and the aid of our usual index, we afford all possible facilities for ascertaining the name of any plant to the finder previously unknown.

CROWFOOTS—RANUNCULACEÆ.

CLEMATIS VITALBA.



The generic name is derived from the Greek *Clema*, a vine-twig, and the specific name from *vitis alba*, a white vine. Of its English names we need only quote this from old Parkinson's *Herbal*—"Most country people where it groweth call it *Honesty*, and the gentlewomen call it *Love*, but Gerard coined that name of *The Traveller's Joy*." But

Gerard adds that it is named "*Virgin's Bower*, by reason of the goodly shadow which they make with their thick bushing and climbing; as also for the beauty of the flowers, and the pleasant scent or savour of the same."

It is in the Class and Order *Polyandria Polygynia* of the Linnaean System.

CLEMATIS—GENERIC CHARACTERS.—*Cal.* none : *Petals* four, rarely five or six, valvular, or rolled back at the edges : *Styles* permanent : *Seeds* numerous, tailed : *Receptacle* capitate.

C. VITALBA. Leaves winged : leaflets heart-shaped : stem climbing.

Stem extending ten or twenty feet, 6-angled, woody. *Leaves* opposite, on leaf-stalks, deciduous, pointed, five-leafleted ; each *leaflet* heart-shaped, sometimes entire, but usually unequally lobed and toothed. The *leaf-stalks* twine about whatever they can lay hold of, and thus support the plant. *Flower-stalks* branched, with triple divisions, woolly, from the bosom of the leaves, bearing numerous sweet-scented flowers. *Petals* green on the outside, cream-coloured within, thick, reflexed, scored, woolly. *Styles* becoming very long, slender, crooked, and covered with fine silky hairs ; forming elegant tufts towards autumn.

PLACES WHERE FOUND.—Common in hedges and shady places, especially where the soil is chalky. It is rare in Scotland.

TIME OF FLOWERING.—July, August.

USES.—Astringent, corrosive, and diuretic. An infusion has been recommended in dropsy by Swediaur. The branches are sufficiently tough to make withs for faggots, for which purpose it is always used in the woods where it can be procured. The hairy plumes growing in clusters exhibit in winter a singular and beautiful appearance over the tops of bushes, hedges, &c. It is particularly well adapted for covering arbours and bowers in pleasure-grounds, being of rapid growth and hardy. "The tubes, lymph-ducts, and air-vessels of this plant appear in a common magnifier beautifully arranged, being large, and admitting the air freely to circulate through them. Our village boys avail themselves of this circumstance, cut off a long joint from a dry branch, light it, and use it as their seniors do the tobacco-pipe ; hence they call it *Smoke-wood*. The pores are well seen by drawing some bright-coloured liquor into them."—*Journ. Nat.*, p. 110. The long feathery down attached to the seed may often be found at the entrance of holes made by mice ; probably dragged there as a valuable material for their nests ; as may be the seeds themselves (though small, abundant), no unimportant accession to the winter store. In France common beggars, to excite compassion, produce ulcers by applying the juice to their skin ; and the twigs are there used to make bee-hives, baskets, &c., possibly in a warmer climate growing even larger and stronger than with us.

(Smith's English Flora. Withering's British Plants. Baxter's British Botany).

FORCING THE KIDNEY BEAN.

Few vegetables are more esteemed in a forced state than the *Kidney Bean*, for it is much more delicate in texture, when from healthy, well-fed plants in-doors, than from those in the open border. Besides, the kidney bean is a great accession to the list of the table vegetables, for with plenty of these, mushrooms, sea-kale, asparagus, cauliflowers, early ash-leaved kidneys, and cucumbers, any epicure may compare his own dinners unblushingly with those of either a Lord Mayor or a Cabinet Minister.

Kidney beans are forced in a variety of ways : in pots, in pits, planted out in frames, and, as we have had them many years since, under the partial shade of a vinery, the vines confined to the rafters.

Whether in pots or not, a liberal amount of heat and atmospheric moisture must be provided, if good, healthy crops are to be insured. Thus cucumbers and kidney beans may be grown very successfully together ; also pines and kidney beans. It being, however, seldom that

a house or pit can be thus appropriated, expedients must be resorted to, and hence beans are for the most part grown in pots, and transferred from one house to the other—from the peach-house to the vinery, or the pinery. Indeed, little advance can be made, at a very early period, short of the heat of the pine-house, or a special house or pit ; for at any temperature below sixty degrees they may just vegetate, but we may look in vain for any progress towards fruiting. One essential point is light, and, in common with most thin-leaved plants from tropical climates, it is useless to expect to excel in their culture with an inadequate amount. Another point of identity, also, may be named, and that is their liability to the depredations of the red spider, the thrip, &c. Therefore, whatever mode of culture may be adopted, or whatever structure they may be placed in, a vigilant eye must be kept on those insidious enemies.

The amateur, and those who possess a very moderate amount of glass, are placed in an awkward position in endeavouring to avail themselves of this delicacy, and in endeavouring to do so perhaps some sacrifice will have to be made. This merely requires a little solid consideration as to what must be had, and what can be had ; and in doing so, the means of heating, with other collateral considerations, must, of course, be a primary consideration. Although the back flue of former days (with a broad shelf over) is almost amongst "the things that were," yet we, in common with some others of long standing, sometimes cast a "longing, lingering look behind," when we call to mind what a snug place this was for our early kidney beans, and many other things : a situation for the loss of which many a man has scarcely received a sufficient compensation. Kerbs in well-heated houses are indeed eligible, but the great principle for which gardeners contend—a bottom warmth a few degrees above the air heat—is not to be found there in the same amount. To be sure, the dry heat liable to be engendered over flues was wont to cause terrible apprehensions about red spiders, and such-like diminutive vermin, but, long since, good gardeners found means of supplying the necessary amount of atmospheric moisture to these dry localities ; and, after all, this is at least the best preventive. Nobody now cares a fig for red spiders ; what between an improved atmosphere and the frequent use of sulphur, gardeners, who used to be pestered with heavy dreams and the nightmare, now sleep as soundly in their beds as Shakspeare's ship-boy. On the whole, we would not advise the man-of-little-glass to attempt kidney beans before the days begin to lengthen, unless he really possesses a pit built for the purpose. By commencing about the middle of January, he may obtain a good crop from a pit or frame intended for succession cucumbers or melons.

The kinds generally preferred are the *Dun-coloured*, the *Newington Wonder*, the *Early Speckled*, and the *Early Negro*. The first-named we consider the most generally useful for a full crop. The *Newington Wonder*, however, a recent introduction, is, indeed, a wonderful little bean, extremely dwarf, very prolific, and noted for the delicate character of its pods. In point of room, this kind will stand in situations near the roofs of houses, or pits, where the *Dun-coloured* will not. It is a delicate-habited variety, and should have very kindly treatment. It should not be transplanted, but grown to fruit in the pots the seed is deposited in, which should be about six or seven inches in diameter. Another remark as to their peculiarities ; they should not be pinched or topped—at least, such is our impression, and we have grown them several times.

And now for the general culture of the larger or old-fashioned kinds. Most gardeners, especially for succession of crops, use pots of nearly eight or nine inches (those termed 24's about the metropolis) for very early

work; however, 7-inch pots will do, and we have even known very good *first* crops in 5-inch pots; but it must be remembered, that there does not at that early period exist so great a demand on the soil, the perspiratory action of the foliage being small compared with that of a later period.

The best soil, perhaps, is a compost of one-half well-chopped mellow loam, the turfy material well decomposed, and the other half old hotbed manure, which had originally been composed of manure and leaves, but which has been broken well down with age. These materials must be chopped very fine when in a dry state, and about an eighth of gritty charcoal added to, and well blended with, the mass, mixing the whole most thoroughly—but no sifting. As spring advances, the proportion of the loam should be increased, or a still more adhesive kind used, as the soil will dry quicker; and although they are much averse to a wet soil, they are equally averse to one that is dry.

The pot must be well drained—no stagnation may be permitted by any means. We use a mixture for this purpose composed of equal parts of old tan and charcoal. These are in lumps averaging in size a large horse bean. We keep a large heap of this in the potting-shed, and use it for “bottoming” to most soft-wooded short-lived things. It is riddled *perfectly clean* when very dry; and no dust permitted to remain in it. After placing two or three coarse crocks over the hole of the pot, a layer of this may be spread two inches thick, and this again covered thinly with half-rotten strawy manure in a mellow state—such as falls during summer from decaying linings. This, too, we always keep in the dry for general purposes, as we find it to act well on the surface of the charcoal drainage. Now, the pots may be half-filled with the coarser portions of the material, and four beans, good and true, placed at right angles. Many practitioners use six, but we really cannot see of what use it is cramming so many in so narrow a compass. To be sure, some will fail; but then it is very easy to sow a reserve pan or box with a few at the same time, in order to make good by transplanting any blanks that may occur. Indeed, many growers raise most of their crops by the transplanting system, for which they find a double reason. In the first place, economy of room is no trifling object; not every nobleman or gentleman's garden has “a place for everything.” Many, therefore, are driven to unworthy compromises, and the forcing of Kidney Beans is one case in point.

House-room, therefore, being scarce at an early period, the bean transplanters sow in boxes: one box, or at most a couple, being enough for most establishments at one sowing. The beans are sown rather thickly, yet no two touch; and this done, they are poked into any corner where a little artificial warmth may be had—say 50° to 60°—and here light is not essential; indeed, most seeds, during their germination, are exceedingly averse to it. As soon as the cotyledons are fairly developed above the soil, from that moment light is indispensable, or the necessary consequence is that the beans become “leggy,” and, by consequence, unwieldly; need we add, hard to manage and unprofitable.

The beans being fairly up, and inured to light, transplanting must be speedily thought of; for it is rather taking a liberty with the constitution of the bean to transplant at all. The pots may be prepared precisely as for the beans when planted to remain; but it is well to use a little more of that kind of soil termed humus, or, in other words, that dark manurial residue which is found at the bottom of most heaps of decaying vegetable matter, the wood pile, &c.; such, when *very old*, is a rapid promoter of quick rooting, a most desirable point with things of such ephemeral character as the kidney bean.

Transplanted beans require but a moderate quantity of water until the pots become nearly filled with roots; if the soil is rather moist when they are transplanted, frequent syringing, which they are very partial to, will almost sustain them. In about a fortnight after planting they will require the same treatment as those which have not been transplanted.

Topping.—This consists in pinching out the central shoot as soon as the cotyledons are fully developed, and is intended to make them bear a fuller crop, and to render them more compact and manageable. The first it does by giving more time, the plant thereby securing to itself more roots against the bearing period; and for the second, some kinds, under some circumstances, are apt to ramble like the Runners, some of the speckled kinds especially. Nevertheless, it must be supposed that this stopping somewhat retards the crop, and should not be resorted to when time is precious.

The pots not having been filled with soil at planting time, there will be room for the application of top-dressings, which are of much service, by encouraging a fresh tier of fibres at the most critical time—the fruiting. The best time to apply this, in our opinion, is just before they begin to blossom; for as soon as the latter fairly commences, new fibres are not so readily made, the accretive matter being in great demand for carrying on the fruit-forming process. The top-dressing should be very rich—say three parts of rich decomposed manure, and one part of crumbling strong loam, adding, in all cases, a little charcoal grit or sand. The dressing should be in a mellow state, well mixed, and pressed down rather close, leaving about one inch below the pot rim for watering. When the beans begin to swell their pods they may probably become top-heavy, and in such cases a little staking becomes necessary. Most gardeners save their apple or currant prunings for this purpose, and the best way is to slip one in to each plant, giving it a tie round the main stem. Care must be taken to point the sticks smoothly, or they will tear the root-fibres, and it is advisable to stake them when they are wanting water, and to give them a soaking of liquid manure immediately after, as a compensation, to prevent the plant “fretting;” for checks of all kinds must be studiously avoided.

Watering.—When the seeds are first planted, no water will be requisite until the beans are breaking the soil, and then but moderately. We scarcely ever knew beans watered before they came up but some rotted; therefore, it is advisable to use moist soil, and to place them somewhere, until above ground, where they will not be liable to sudden droughts. The waterings must increase in quantity progressively as the plants advance, and when in full bearing they will require very liberal supplies. Tepid water, of course, at all times; and as soon as they show blossom, our practice is to commence applications of liquid manure, and this we apply every watering, *clear* and *weak*. This benefits them much, and enables them to blossom in long succession, as also to produce tender pods.

Heat.—As might be expected, on a consideration of the character of its native clime—the warmer parts of South America—a bottom-heat is very desirable. They are, however, grown in high perfection without. As to atmospheric warmth, no one need think of forcing them who cannot command a temperature of 55° to 60°, in defiance of the most intense frost. Exist they may, under very low temperatures, but if they are to become profitable they must be warm.

They luxuriate in a temperature of 65° to 80° by day, such being regulated *entirely* by the degree of light they receive; whilst at night, the thermometer should not descend below 55°. A liberal and constant amount of atmospheric moisture must be sustained, and a motion maintained in the atmosphere by a systematic course of

ventilation, as frequently as is consistent with safety. One point should be carefully observed: all pods should be plucked the moment they are in high perfection, or the plants will soon stop bearing. R. ERRINGTON.

PILLAR ROSES.

How hard and harsh it seems to have to deal unkindly with any one, even were he not worthy of our confidence; and how much more, therefore, must it be when the parties are old friends and favourites, with whom we have often enjoyed the socialities of private life, sweetening our path among the thorns and briars of a busy world. Yet I fear it must be so in the instance of pillar roses. Not one of those charming ones mentioned at the end of my last letter, or of many others like them, from the other sections of summer roses which are now dancing before the mind's eye, would I recommend to the notice of the young amateurs, while the veterans and devotees in the same walk may do, and no doubt will do, just as they please, for aught that I can say or write. No! although I was lately among the veterans, and something of a devotee besides, I am now the youngest amateur among you all; and, without any wish to cast off old friends, I shall have nothing to do with summer roses on pillars. *Hybrid perpetuals* and *Bourbons* will be my choice; those I shall select from among the summer-bloomers must keep their heads a little lower, and to keep them at a proper distance I shall order two autumn, or perpetuals, to be planted right and left of every one of them.

We will begin with *Mrs. Elliot*, the best pillar rose among all the hybrid perpetuals—that is, on pillars seven feet high; and at the end of the third growing it ought to reach the top of the pillar, provided the border is made rich, and the soil a strong loam. After that *Madame Laffay*, unless we choose to have *Bourbons* and hybrid perpetuals planted alternately, which would be a better arrangement, on account of the difference in the leaves, and style of growth, and flowering, the *Bourbons* having more glossy leaves, and their flowers being more in the style of China roses.

It is well known that I prefer all the strongest of the hybrid perpetuals—those that do for pillar roses on their own roots—and the same with strong *Bourbons* in beds; but for pillars all my *Bourbons* would be budded on the *Manetti* rose, quite close to the ground. I must also remark, that I had some misgivings about recommending any of the *Bourbons* on their own roots; for although they have done better with me on their own roots, it may have been owing to the nature of the soil, and chalky dry bottom, and I have no experience of them, worth much, on any other soils, because I have not travelled much for some years, looking into other gardens; therefore I would rather cancel this part of my story, or at any rate leave it, for the present, an open question, till I hear and see what the great rose-growers have to say and have done about their *Bourbons*.

If we had white or light-coloured autumn-bloomers in variety, and strong enough for my pillars, I would arrange them so that the white ones would come in after crimson or dark ones; but we have not much variety in colour to choose from, and all the light ones are *Bourbons*. *Acidale* is the best white of them, but it is liable to be cut down by a hard frost, so that it must be protected. *Imperatrice Josephine* is a blush rose, of excellent habit for pillars, and *Lavine d'Ost* is like it in that respect, and also a blush. *Madame Lacharme* is a better white than either of these—indeed, the next to *Acidale*; but its way of growth, and flowering in large clusters, puts you too much in mind of a China rose. We must admit it, however, on account of its colour, and its

excellent habit for covering a pillar. Therefore, if we mixed the two classes in one row of pillars, any of these light ones will do between *Mrs. Elliot* and *Madame Laffay*, then another light one, to be followed either by *Le Grenadier* or *Dupetit Thours*, the two best dark *Bourbons* that will answer for pillars. Then *Baronne Prevost*, or *Duchess of Sutherland*, for a light rose tint, and *Silone*, another shade of pink, and a splendid rose. I believe these are the only distinct shades we can make out. *Bouquet de Flora*, among the *Bourbons*, would give a redder tint, and so would *Splendens*; and these two should not be planted near each other for fear of looking too much alike. Neither should *Mrs. Elliot* and *William Jesse*, although brother and sister; so that, after all, we come short of a good arrangement of colours; and even as it is, what is here suggested need not be followed, and all that I can do farther is to give the names and colours of the best sorts for pillars in each of the two sections, which, I hope, will be of some service, as the real habits of these roses are not nearly so well known as the colours; besides, having incurred the responsibility of recommending autumn-bloomers only for the ordinary size of pillars, some might suppose that any of the hybrid perpetuals would do as well as most of the *Bourbons*, and so get deceived after all, and call me over the coals when it is too late to help myself.

There are, however, comparatively, but few roses in each section of these perpetuals that are really fitted to be made into pillars, whereas more than two-thirds of the hybrid Chinas and hybrid *Bourbons*, and several among the other sections of other summer roses, are naturally better adapted for pillar roses than for any other way; and although I prefer the autumn-bloomers to all the finest summer roses for every purpose whatever, that is no reason why others should participate in this prejudice, or be deprived of their summer roses; therefore, after giving an account of my own favourite roses, I shall also name the best of the summer-bloomers for pillars.

To begin with the *Hybrid Perpetuals*: *Mrs. Elliot* is the first on the list—a large, glossy, red, rosy flower. *Madame Laffay*, crimson. These two cannot be improved in growth by any kind of stock whatever. *Baronne Prevost*, a true rose colour, and the largest of roses. Late in November this Baronne vies with *Fulgore* in deceiving you into the belief that the old cabbage-rose has turned perpetual, but he is not nearly so sweet as his rival. *Duchess of Sutherland*, a shade lighter than the Baronne, a charming rose, with a name no less so. For the south of England and Ireland, *Earl Talbot* would come in next, a splendid deep rosy red, but I cannot recommend it; generally, it is so double and hard in the bud that it cannot open well. This rose and *Prince Albert* require a New Zealand climate. If I were going there, they are the first two I would pack. *Cornet*, a pinky lilac, rose-colour, a very large flower, and the nearest to *Fulgore* in sweetness.

By the by, it would be very desirable to hear free criticism on the sweetness of autumn roses. Mr. Rivers says *Riego* is the sweetest of all roses, whilst I always put it down as a third-rate in that respect, and, therefore, I may be wrong about *Cornet*, but I could bring forward some of the first ladies in the land to back me about *Fulgore*, late in the autumn, for I have often made the experiment, therefore, being a strong grower, I adopt it for a good pillar rose. It is, if any thing, deeper in colour than the cabbage-rose, and it must be on its own roots, and be treated like the *Gloire de Rosamond* to keep it full at the bottom. That is, all the small shoots must be cut in quite close, and the strong ones be left at nearly their full length, and when the pillar is covered, we must begin to cut out gradually the three-year old wood. By attending strictly to this system, these two

beautiful roses on their own roots, will last on pillars as long as any rose we have, but if we neglect their proper management, no rose is more likely to wear out sooner than they. *Louis Buonaparte* is a fine, large, shining flower, of a rosy colour, well suited for a pillar; with good culture and a little hard pruning let us hope its namesake will make a good French pillar too. *Jacques Lafitte*, a beautiful large rose-coloured flower, which was well nigh being thrown out of the lists four years ago, because, as I suppose, the stock of it was too much run upon in the propagating pits to meet a large sale. The plants turned out badly in most hands, and in mine amongst the rest. This often happens with a new dahlia. It gets a good name, and every one must have it next year, so it must be forced almost to death, and they cut, cut away at it till no virtue is left in the poor spindly things they call "strong established plants early next May." Another very great disadvantage to *Jacques Lafitte* was its being "let out" along with *Geant des Batailles*, which took the whole country's attention, to the prejudice of its less brilliant companion; but on warm, dry soils *Jacques* will yet become a favourite, and being a strong healthy grower, is well adapted for a pillar or for the bottom of a south rose-wall. *Sidonie* is another strong pillar-rose in this class, with rosy pink flowers, and *William Jesse* is not a shade behind it, with glossy pinkish red flowers. *The Queen* or *La Reine* is also suited for pillars; in the bud it is the most noble of all, except the *Malmaison* rose, but it requires a much stronger soil than *Madame Laffay*, and those which take after it, and the soil cannot be made too rich for it. As soon as the buds are seen, this noble rose would take a dose of rich liquid manure three times a week, and without the highest culture its full beauty is never seen. *Augustine Mouchelet*, a fine, crimson, well-known rose, and *Madame Trudoux* another crimson, and a newer rose, are highly deserving of a pillar. The *Standard of Marengo*, said to be darker than either of the last two, I have not yet seen, but it bears a high character. *Madame Lamoriciere*, a bright pink, *Chateaubriand* the same; *Genie de Chateaubriand*, crimson, *Henry the 4th*, (Henri Quatre) a large rosy flower, and *Caroline de Sansales*, a blush rose, are all of them excellent for pillar-roses, and very likely there are others as good in this section, although I do not happen to know them, so that without the aid of the Bourbons we have enough, and to spare, to make perpetual pillars.

I believe *Geant des Batailles* might also be got up to a pillar size, in three or four years, in good rose soil, and if so, what a noble avenue of pillars it would make of itself. It would be quite unapproachable in all that we know of in the disposition of roses. *Dupetit Thouars*, from among the true Bourbons, would come the nearest to it, and after that, *Tyrian Purple* noisette, which, treated as a pillar-rose, has as much claim to be called a Bourbon as *Gloire de Rosamene*, therefore I include it as such. *Julie de Fontenelle* is another splendid, darkish Bourbon which no one should pass when planting pillars, and *Le Grenadier* is just as good. All these dark Bourbons, mixed with the rose-coloured Hybrid Perpetuals, and again interspersed with the white and blush Bourbons, must assuredly drive the summer roses from their post, and yet we have *Splendens*, *Pierre de St. Cyr*, and *Madame Desprez* to add to our list of rose-coloured from the Bourbons. Some people object to *Splendens* and *Madame Desprez* because their flowers come too near the colour of the old large China, so common against cottage doors all over the country, but then, there are no more constant bloomers in the catalogue, except *Gloire de Rosamene*, and the true *Splendens* is really more like the latter than any other rose, and though not very double, it is always in bloom, and attractive. There is a very common-looking rose called *Splendens*, in some collections, and I once had it from Bath, but I cut his

head off the moment I saw it. I believe the true *Splendens* is now on sale in all the nurseries.

Last of all comes the very best of all the rose tribe for pillars, *Gloire de Rosamene*. There is not another rose in the world so constant and so useful for a gardener as this, nor better for a pillar, but it should not be planted in a row along with all, or any, I have noticed, because it is certain to throw the whole of them into the shade, except, perhaps, *Geant des Batailles*. If we had a broad concrete walk, as smooth as sheet glass, and as long as you can see, and sloping gently towards the south-east, or south-west, and lined on both sides with pillar-roses after this fashion, *Gloire de Rosamene*, ten feet apart and ten feet from the walk, then another row of *Le Grenadier*, a third with *Dupetit Thouars*, and the fourth with *Geant des Batailles*—no one should tread on it for two hours in the forenoon and two hours in the afternoon, but queens and maids of honour, and a good gardener, to tell them how the fairy scene was created—in the middle of the day it would dazzle your eyes too much to enjoy it.

The summer roses that are fit for pillars are too many for my space, therefore put up with the following till you hear of a better selection. Hybrid Bourbons—*Chenedolle*, the best of summer roses, is named after Charles Chenedolle, a great French poet, who died near Caen, on the 2nd of December, 1833; *Coupe de Hebe* and *Charles Duval* are quite as good, but not so brilliant; *Las Casas*, very large, and rose colour, and *Paul Ferras* the same. Hybrid Chinas—The only reason that I can think of for keeping Hybrid Chinas and Hybrid Bourbons apart, is merely to puzzle people; that is not the point, however, but which are the best pillar roses in the latter, and here I break down, for I cannot decide between *Brennus*, *Triomphe d'Angers*, and *Triomphe de la Queue*, three shades of crimson. *Fulgens*, though not a very double rose, is brighter than any of the three. *Emperor Probus* I mistook last July, at the Regent's Park show, for *Baronne Prevost*, and that will tell its tale. It was in Mr. Lane's collection, and I think I never saw a finer specimen, and *Madame Plantier* is the best white of the lot. *La Dauphine* the second best white. Among the list of the summer roses *La Ville de Londres*, *La Ville de Bruxelles* are the best rose-coloured. *Princess Clementine*, and *Princess de Lamballe* the best whites. *Kean*, alias *Shakespeare* and *Boula de Nanteuil* are the two best dark ones. *Lanei* and *Celina* are the two best new moss roses for pillars, but the old common moss and also the *Cabbage Provence* the best of all roses, may be grown to pillars in good soil, and I hardly know how many more besides. D. BEATON.

SULPHUR AS A GARDENING AGENT.

For some years my finger-ends have been itching to scribble something more decidedly in the praise of *Mr. Brimstone* than had hitherto been essayed by any of his numerous admirers and supporters. But as in my dealings with him I had not at times altogether escaped his scourging influence, I felt afraid, lest my recommending him, unless due and great care was exercised, would be attended with more danger than profit.

More than two years ago, when speaking of the care required when fuming a house with sulphur, to keep the volatilizing medium at a sufficiently low temperature, I hinted that there were cases in which the sulphur might be burned and fused with impunity, but that I was rather afraid to enter on the subject. As that, however, has now been done, and by no less an authority than the veteran and esteemed Mr. Errington, (p. 161), I feel both emboldened and called upon to state my experience, and to confirm his statements with respect to the

burning of sulphur, feeling confident that neither he nor any of our readers will imagine I am going out of my track in doing so, as such a matter is of importance in every department of gardening, and in none more so than where one house has in rotation to receive a great many occupants.

Merely premising, then, for the present, that sulphur should never be burned in a close place, in the presence of plants, unless they are deciduous, have lost their leaves, their wood well ripened, their growth suspended, and in a dry condition, then all these circumstances being present, burning sulphur may be used with profit, in-doors and out-doors, as a "*searching ordeal*," destroying everything of an animal nature, and of a fungous vegetable nature that have less to protect their vitality than the well-ripened bark and scaly buds of deciduous vegetation.

I will first present a few statements respecting sulphur, that our more uninitiated readers may see the importance in all cases where it is heated enough to throw off its volatile fumes, to use *caution*, and more especially if they attempt to burn it, that the above conditions are indispensable.

Sulphur is found joined with metals and minerals in our own country. It is frequently present to a considerable extent in coals. Often have I been obliged to tie a handkerchief over my mouth when grubbing out the clinkers from furnaces. A lucifer manufactory was a trifle to it. The mode of heating by *flues* was often objectionable on this very account. For plant stoves and forcing purposes, wherever the coals used are known to contain much sulphur, the flues should be stronger than usual. In all such cases as a continuous more than a sudden heat is necessary, I should have them built brick on bed instead of brick on edge. I have seen most serious effects from the discharge of sulphur from a thin flue, even where the closest investigation would fail in discovering a crack or fissure. I have even failed in discovering the latter, when the appearance on the glass told too well that sulphur had been there and trying for an outlet.

Flowers of sulphur are more easily applied than when in the solid state.

As a preventive and an eradicator of *mildew* in its many forms of parasitic vegetation, flowers of sulphur have been long known. Its application for this purpose to the vine is merely *new*, because the disease itself is of recent manifestation. Its application to mildew, either in a dry state by itself, or mixed up with water and other ingredients, is almost the only case where I should depend upon it being of effectual use. In almost every other case I would depend, not upon the sulphur touching the affected parts, but upon its volatilized fumes. In the *mildew* itself I would depend, to a great extent, both as prevention and cure, to these fumes, but I would not hesitate to make doubly sure by also dressing liberally. In most other cases, where sulphur forms a constituent of a paint for destroying insects by smearing them, anything else that would equally shut out the air would answer equally well. In every position, such as against a wall where the heat would slowly volatilize the sulphur, then its effects would be felt. In nothing has the gardener derived greater benefit from it than for ridding him of the *red spider*, bad enough in the open air, but ruinous in houses. Well, after powdering and washing with sulphur and water infected leaves, I have seen the little fellows as merry and sportive as ever, laughing in their sleeves at your wisdom, and, as if to mock you, riding rough shod in the happiest manner over those very nodules or hills of brimstone that you thought would frighten them away. But give these same worthies a fume of sulphur from a hot water plate, ranging from 170° to 195°, and if not soon quieted, it will only be by their quickly removing to fresh quarters.

If, then, the fumes of sulphur are so useful to the gardener, how can he most safely apply it? A most important question—no law of *mediums* here will do. If you err, let it be on the safe side of low temperature. Whenever sulphur burns it will destroy, not only animal life, but everything vegetable that is growing and green. It will burn spontaneously when exposed to a temperature of 302°, at a higher temperature still the very fumes will again ignite. In putting a paint of flowers of sulphur upon the warm end of a flue, there is always this great danger. It should always be put on at some yards from the furnace. It fuses or melts, but does not burn at 220°. Long before that heat it gives off volatile fumes. Hence for hardy things, smearing hot-water pipes, unless close to the boiler, will never be dangerous, because the water will scarcely ever reach 200°. But at that heat the fumes given off would be ruinous to foliage just forming, and many flowers would immediately drop. In all cases where leaves were young and deficient in organizable matter, I should not like to use a higher temperature to obtain fumes than from 170° to 180°. Many things, such as some of the *Achimenes*, *Gesneras*, and the finer foliaged *Ferns*, do not seem to relish these fumes at all. In obtaining fumes for a house, therefore, it might be necessary to remove things that are tender and young. As some, if they have not burned their own fingers, have settled their plants by being rather too rash, these hints will not be thrown away.

Now we come not to the obtaining merely of fumes from, but actually to burn the sulphur, thereby producing *sulphurous acid*. Some twenty years ago I assisted, by means of burning sulphur, in destroying whole nations of *bugs*, that had settled down comfortably in a large gardener's lodge. In afterwards growing succession crops of *French beans*, *cucumbers*, *melons*, &c., under the same glass, I generally, after removing the old plants before inserting the new ones, shut up each pit and frame, and burnt inside a handful or two of sulphur. A little of the surface soil being removed afterwards, and air freely given for several hours, the place was sweet and pure for the new plants. Of course not a thing was left in that it was desirable to keep alive. Some eight or nine years ago I was greatly troubled with the *scale* on my peach-trees in the houses, notwithstanding all the scrubbing and washing I could give the trees in winter. It seldom made its appearance until the fruit was approaching maturity, and then it got on with such railroad pace, that the excrements not only blackened many of the leaves, but rendered some of the fruit unsightly. I had in the meantime observed, that small stakes made from raspberry canes, and used as supports in kidney bean pots,—when these stakes were left, and smoked in the pots with the sulphur, and used a second or third time, instead of being killed, as I expected, would frequently burst their buds, and shew leaves and flowers. From that time to this I have regularly smoked my forcing houses, and scale and other insects have since been scarcely discoverable—in fact, the former is very seldom seen. I did not find it convenient to do so with one house last season, and from that neglect, joined to placing in it a few *Azaleas*, that had not been quite destitute of thrip, I had the mortification to see *Vines* arrested in their growth by thrip at the most critical period. It is all right to talk of keeping houses for certain objects: cheap as glass is, the greatest variety of results from the most limited space is still, and likely for some time longer to be, the prevailing desire.

I have already indicated the conditions in which the sulphur is to be burned, and, to prevent mistakes, will shortly recapitulate—

1. *Mode of burning*.—I have generally placed some red embers in a pot, put a few bits of dry straw on the embers, then placed on this the flowers of sulphur, and covered the top of the pot with a layer of dry moss. I

find that the embers and the sulphur are quite effectual of themselves, as combustion proceeds slowly. I have no doubt that Mr. Errington's mode of mixing dry sawdust is an admirable one. Whatever is mixed with it must be *dry*. Use no other noxious matter with it. To make assurance doubly sure, I have burnt tobacco and bruised laurel-leaves with the sulphur; but in every case the painting was affected, being rendered brown or black—a matter of no great moment in a pit, but of great consequence in an ornamental house.

2. *The growth must be finished, and the wood hard and firm*.—If not well-ripened, the bark will be injured in places, as if burned with a hot iron. I once had a number of peach shoots injured, but, though the bark was injured, they bore well, and care was taken to get rid of them the following year. Equal care would be necessary with all shrubs of a deciduous nature, whether grown for ornament or use. The *dryness* of the wood is indispensable.

3. Equally indispensable is the *dryness of the house*, especially on all parts covered with paint. If wet, a grey sulphuret of lead is apt to be formed, and covering the paint with a dark powdery substance, if there is enough of moisture for sulphureted hydrogen to be formed—of this our chemical friends will be the best judges. Whatever be the rationale of the formation, there it is likely to be; and though it will wear off in time, and may be washed off with labour, it would be a great annoyance to our friends who like to see clean paint.

4. *Quantity*.—In this I have never been particular; a small handful or two good tablespoonfuls to a house twelve feet by eight, repeated according to size, is an average quantity.

5. *Circumstances*.—A quiet day or night, every cranny in the house stopped, and no door or window opened for at least a dozen of hours after it is seen that combustion has fairly commenced.

Used with caution, sulphur, more than it has been, will be found a great auxiliary; used carelessly, it will bring deep disappointment. The field being now open, I have no doubt but Mr. Errington will give us still more definite directions. R. FISH.

EXOTIC ORCHIDACEÆ.

PLANTS THAT THRIVE WELL IN POTS (Continued from page 179).

ZYGOPETALUM COCHLEARÆ (Spoon-lipped); Trinidad.—Sepals and petals narrow, forming a kind of crest above the lip; they are pure white, and a little bent back; the lip is very large, with the edges turned a little upwards and inwards, so as to assume a form something like a spoon, or sugar-scoop; hence its name. It is of a pleasing pale blue colour, streaked with purple. It is a handsome species, well worthy, but rather difficult, of culture. This has been described as *Huntleya cochlearæ*. 42s.

Z. CRINITUM (Hair-lipped Z.); Brazil.—Sepals and petals ground colour, buff, richly barred with brown; lip white, broadly striped with purple, and covered with hair. There is a variety with red stripes; the lip has also several longitudinal ridges covered with coloured hair, which adds greatly to the beauty of the flower. The flower-stems, when the plants are strong, are numerous, growing only about six inches high, producing numbers of flowers on each stem. Its dwarf habit, handsome flowers, and easy culture, render this a desirable plant. 42s.

Z. MACKAYII (Mackay's Z.); Brazil.—Sepals and petals yellowish green, spotted and banded with brownish red; lip large, broad, white, striped and spotted with blue, and in one variety with deep brown. There are several varieties of this fine plant, all very beautiful.

The flower-scape rises two feet, producing seven or eight noble flowers. When a plant is large and healthy, few orchids have a more noble appearance. We have seen a plant in the fine collection belonging to R. S. Holford, Esq., at Weston Birt, in Gloucestershire, with nearly twenty stems upon it. It was growing in a pot fourteen inches across, and the plant completely filled it. It was a truly magnificent specimen of good culture. Every collection of orchids ought to include this species; good plants may be purchased for 31s. 6d.

Z. MAXILLARE (The jawed Z.); Rio Janeiro.—Sepals and petals ground colour, a pleasing green, barred with deep chocolate colour; lip curiously formed, having much the appearance of a coronet, or the lower human jaw; it is deeply indented, and the colour is a rich blue. This also is a very fine species, lasting a long time in bloom. We have had a plant in bloom for four months at a time. A good plant will cost 42s.

Z. MURRAYANUM (Mr. Murray's Z.); Organ Mountains.—Sepals and petals yellowish green, without much marking—often self-coloured. The lip is of a beautiful pure white ground, elegantly striped with purple. The column, too, is large, and forms a conspicuous part of the flower. It is striped with red, upon a yellow ground. Though not so showy as some other species, this is worthy of cultivation, on account of its singularly well-defined colours. 21s.

Z. ROSTRATUM (The beaked Z.); Demerara.—Sepals and petals pale brown, very narrow and long; the lip is very large, broad, and pure white; the column at the end is elongated into something like the form of a bird's beak; hence its specific name. It is rather a scarce plant, being somewhat difficult to cultivate. 63s.

Z. STENOCHILUM (Narrow-lipped Z.); Brazil.—The sepals and petals in this species are very large in comparison with the lip; they are of a brownish green, spotted and barred with chocolate red. The lip, as the name implies, is narrow, and appears still more so on account of the edges being turned inwards. It is white, and striped with pale blue. 15s.

Culture in our next paper on Orchids.

T. APPELBY.

THE VERBENA.

(Continued from page 195.)

SITUATION TO KEEP PLANTS IN POTS IN, TO BE EXHIBITED THEREIN.—The plants intended for exhibition in pots, should be in a pit or frame deep enough to keep them from the glass at least nine inches, when in bloom. The best plan would be, first, to cover the bottom of the pit or frame with a layer of dry coal-ashes two or three inches thick; then to turn a sufficient number of empty pots upside-down to set the pots containing the plants upon. When they are first placed in the pit they should be within six inches of the glass. This distance will enable them to grow stout and bushy. Afterwards, as they advance in growth, they may be lowered accordingly, which may be easily done by using lesser pots, or even bricks, for them to stand upon. It even may be necessary to lower them so much as to place them upon the bed of ashes itself. This, however, will depend much upon the methods adopted to train them, so as to show the blooms off to the greatest advantage.

Potting.—The winter season having passed away, it is then time to think of choosing the plants to cultivate for blooming in pots. Much of the success depends upon the kind of plants chosen for the purpose. In the first place, they must be healthy, clear from insects, and well furnished with leaves. Secondly, they ought to be low, bushy plants, with numerous branches as close to the soil as possible; and lastly, the kinds chosen

should be such as produce good trusses of well-shaped bright-coloured flowers. (Information as to the kinds we will endeavour to furnish in the course of this essay on their culture.) These important points having been all properly attended to, proceed to pot the plants. The best season for this operation is when the light of the days begins to be well increased. The month of March is the time when the sun begins to have considerable power; and the severe frosts then have in a great measure ceased. Place some of the compost where it may become moderately dry; have ready a sufficient number of either new or well-washed old pots. We are no advocates for large shifts at this time of the year, even for such free-growing plants as the Verbena. If the plants, as is generally the case, have been kept through the winter in what are called 60-pots, that is, pots about three inches diameter, a shift into five-and-a-half or six-inch pots will be amply sufficient at this early season. Provide also a good quantity of materials for drainage; the best being that made of broken garden pots, technically called potsherds. This material should be clean, that is, clear of earthy matter and the small dust made with breaking them into the proper sizes. Also provide a few hooked pegs to pin the plants down with as soon as they are potted. When all the materials are in a fit state for use, then commence potting. Any time from the first of March to the middle of the month will be suitable. Do not forget in time to prepare the pit or frame to receive them in the manner mentioned above. Drain them well; and in potting loosen the roots a little, and spread them out amongst the fresh soil. Fill the pots nearly, but be careful not to bury the neck of the plant deep in the soil, because in early spring there is danger arising from the damp atmosphere of the pit. As soon as the potting is finished give a gentle watering, and place them in the frame. As the potting is being done, advantage may be taken of the time to peg down such shoots as are long enough for the purpose, spread them out equally over the surface of the pot, and nip off the ends of every long shoot, which will cause them to break out more shoots, and the pinning down will also induce shoots to spring from the centre of the plant, thus furnishing it with plenty of wood.

At this time it will be necessary to determine the mode of *training*. There are three modes by which this operation may be carried out, and by any of which the plants may be made sufficiently ornamental, and fit for exhibition. The most artificial mode is that of training them to a round flat trellis. This, however, cannot be applied at a very early stage of growth, because the plants are not then in their blooming pots. The next mode of training is the simple one of merely placing sticks to as many as will, when in bloom, form a bush of flowers, the trusses nearly, if not quite, touching each other. The last mode is one which we strongly recommend as being the most graceful and effective. It is to train them in the form of a pyramid, the centre to be, of course, the highest, and the trusses of flowers to be so arranged that every side shall be furnished with bloom. We believe this has never yet been attempted, or seen, at any exhibition; but in a few instances in private establishments, merely to ornament the greenhouse, this mode has been acted upon with the most happy effect. And such is the skill, patience, and industry of amateur florists, that they need only have the hint given to cause them to try this comparatively novel mode; and we can assure them such is the pliancy of the Verbena, that it may be trained in this way very easily. All that is wanted are a few very small sticks, so arranged, pointing upwards and outwards, as to bring the branches into the desired form when they grow long enough to tie to the sticks. To bring the plants into this form, the training must be commenced at an early

stage of growth, even at the time of the first potting. Choose the plants that are well furnished with shoots; pin down with hooks as many as possible, leaving one or two upright in the centre. Nip off the top of these to furnish a second tier of branches, and when these break and have grown a little, place the sticks to tie them to, keeping two or three upright to furnish a third tier of shoots. Proceed in this manner till the plants have attained about eighteen inches in height and fifteen inches diameter; the trusses of flowers may then be allowed to grow and bloom. T. APPLEYBY.

(To be Continued.)

POTATO FORCING.

THERE is always something cheering in the increase of the days, even if it should take place at a time of severe frost, or of dull and gloomy damp weather. The knowledge that "a better time is coming," carries with it something inspiring to the gardener, so that, if he has been "resting on his oars" for some time previously, he is almost sure then to bestir himself, and throwing all carelessness aside, he feels the time has come for action. Now, though this change does not take place with all at the same time, yet we never knew any one deserving the appellation of "a cultivator of the soil," (to say nothing more), who did not arouse himself in earnest at some period of the season or other, while all those who aim at keeping pace (or taking the lead in) the various horticultural matters, which are now-a-days regarded as the test of gardening skill, will at once bestir themselves with all the energy befitting so laudable an undertaking; and to our amateur friends, who have the means of forcing useful vegetables, &c., to furnish their tables at an early period, we this week devote an article to that most useful of all vegetables—"the potato."

POTATO FORCING.—Our readers will remember, a few weeks back recommended them to place a few of the best early variety of potato in some warm place, as the top of a tan-bed, the floor of a vinery, if kept warm, or it might be in a mushroom-house, or hot-bed, any place moderately warm, but not too dry. The cover of a flue, or on wooden boards in a dry atmosphere, will not do; there the potato is robbed of one of the most important attendants necessary to success—namely, to its very existence. If left long in such a position, its vital powers are so much called into action, without any chance of its having any compensation for such exertion, that ere long, the vital principle becoming less and less able to supply the demand, the root either perishes, or, if removed to a more suitable medium, the change takes place at a time when it no longer contains those substantial components calculated to ensure a healthy, vigorous crop. So much do we insist on this point, that we are almost inclined to believe that a sturdy, vigorous tuber, used as seed, is the best antidote to that fatal disease of which we have heard so much, and really know so little. But to our text; and supposing the evils above to have been obviated, and the required quantity of sound potatoes sprouted a little while lying singly on some suitable medium, our next business is to remove them to somewhere that they may obtain the beneficial effects of daylight, provided they have been in the dark before. In this intermediate stage, we are guided solely by the means that we have at command. Sometimes we place them in a frame, or hot-bed, which is kept at forcing heat, or we have laid them on a bed of fermenting materials inside a vinery, but wherever they are placed, let about two inches of leafy matter, not too much decayed, be laid under them, and a little, say an inch, over them; the latter prevents an undue evaporation should the atmosphere of the house become

dry. The potatoes themselves are placed in this medium, about three or four inches apart, and they may remain here until they have begun to grow, both at top and bottom; the object of the leaves, &c., being to encourage that growth, and likewise, it being the most portable material, they can be safely removed at any time, with a considerable portion of it hanging to their roots. Now this plan, as a preliminary one, we like better than potting, which some do. The latter mode, we think, gives a stunted, cramped growth to the plant, and though the operation of turning them out of pots and planting them in their proper quarters, may seem an easy one, yet we object to that twisted direction it gives to the roots, and in a general way prefer removing them with balls or rather flakes of leafy matter, which we are particular in planting in the same way as they are taken up, and not huddled together like a lot of rubbish buried in a hole.

But now to the bed on which they are expected to grow; and on this point we mean to say a few words, as we have seen a good system completely marred by a fit of niggardly economy, which banished the potato forcing-frames to some out-of-the-way place, where they were denied that all-important agent, sunshine, until late in the day. Now we never knew anyone who did not esteem a dish of nice young potatoes as one of the best adjuncts to the "bill of fare;" why, therefore, are we to deny it those advantages necessary to success? We say, then, give it one of the best positions in the framing ground—we mean the first portion that is put into force—after crops may be suited elsewhere. Now, having fixed on the site, heating materials must next be thought of. In the country, leaves are generally employed, but in the neighbourhood of towns, either dung or tan is the common article used. We hardly expect potatoes can be afforded hot-water-heated pits, except in especial cases; we therefore suppose a two or three-light box-frame to be devoted to the purpose, and heating materials to be in readiness, which, on this occasion, we shall presume to be leaves, the steadiest and most suitable medium we know of, when only a gentle heat is wanted. Our duties now are to make up the bed the required size, which, if done with leaves alone, must be somewhat larger than the frame, but it is very good practice to build the outsides with rough littery dung; it stands better, and let the interior be of leaves only. As a great deal of cold weather may be yet expected, and the heat from leaves being moderate, it ought not to be less than four feet high. This being done, and the frame and lights put on, we wait a day or two, and then put on the soil, which ought to be sound, good loam, not wet and sodden, neither what is called too light; that is, it ought not to be composed of decayed leaf and other matters in too great a proportion; a robust tuber like the potato requiring more substantial food. After the soil is introduced, we wait a few days until it gets warm, and some fine day we take advantage of, and remove the potatoes from the position they have been occupying in a preparatory way. In doing this, every care must be observed to take them up with all the ball available, and carrying them at once to the frame, plant them with as much dispatch as is consistent with well doing. We usually divide our frames into a certain number of rows, as near eighteen inches apart as they will divide; the rows running across the bed, i.e., north and south; about six or seven inches, from plant to plant, is also allowed, and as we only plant the short-topped kinds of the ash-leaved variety, we have found the above distance sufficient. Now, as we suppose the potatoes to be showing a little green top, we take care not to injure that top, and if it be too short to allow the tuber sufficient depth in the soil without a risk of burying it, we leave the ground shelving to it, or, what is quite as well, add some more soil afterwards; but in a usual way, the tops are quite

enough advanced to admit the full depth of soil at once, and the bed is made up accordingly; when all is right, the frame is shut up, as we seldom water it at the same time, for it rarely happens that there is sufficient heat to require water, and there is generally plenty of moisture to feed the young plant without its extracting an undue amount from the parent tuber. We may add, in this mode we do not sow *Radishes*, as the rapid progress of the potato, when brought forward in the method detailed, is such as to leave no chance for the *Radishes* doing anything but producing a tuft of leaves and a long neck; but we sometimes have a row of pots standing between the rows of potatoes, when our space for such things is limited elsewhere, as it very often is in early spring.

Now, having brought the amateur thus far, very little remains to be done, except to be careful in covering up at night, and in severe weather that must be done securely, and to be sure to give air on all suitable occasions, shutting up early in the afternoon. Water will be wanted as the season advances, but of that a tolerably good index may be formed by the weather outside, and the mass of foliage within. If the bed be formed of other materials than leaves, and the weather very dull and cold in February, or perhaps a severe frost occur then, some additional heat in the shape of linings will be beneficial, if such assistance can be granted, as that important season generally drains all the resources of that kind for other objects. Now in the above details we have supposed the frame and lights to remain over the crop until fit to take up for use, because we think the first crop is deserving such indulgence; but in all after-crops some other contrivance must be adopted, so as simply to forward their progress at the least possible expense of protecting materials, in which glass rarely forms a part; but the means we adopt, and other particulars relating thereto, we must leave for another time, and in concluding this article, we may say the kind of potato we plant is one said to be an improvement on the old "ash-leaved;" and though some of the round varieties may be very good, yet the name of a kidney carries with it something like a warrant of its qualities, (and the one we have being good) we have rarely used any other.

KITCHEN-GARDEN SUNDRIES.—*Sea-Kale* may now be more advantageously forced in the grounds it grows on than it could have been before Christmas. Nevertheless, we cut some the first week in December so forced. Cover up and protect it previously to the application of heating materials. *Rhubarb* is by no means so easily hastened on as *Sea-Kale*, but it makes quick progress when it once gets a start. *Asparagus* may be attended to, as directed in former Calendars. *Cucumbers* that have been carried through so far in a healthy condition may now be expected to do better, as clearer weather may be anticipated. A little more seed may be put in; and those of our readers who have not the means to grow "winter fruit" must see about sowing their first lot without delay. Attend to the covering up of vegetables that the severity of the season may require; in this respect *Celery* may be included, if the frost comes very severe. Let stores of *Carrots*, *Potatoes*, *Beet*, &c., be looked over, and decayed ones removed; and *Onions*, *Dried Herbs*, and other things must also have that timely "looking to" which alone keeps them and every thing else in that degree of order which alone constitutes good management.

The readers of THE COTTAGE GARDENER will have noticed the Kitchen-Garden department has, during the last few weeks, appeared under the initials of a person whose address it was promised would be shortly forthcoming. In therefore making my *début* to the gardening world, I am reminded that the established rules of

society has imposed the task of my making something like a "formal introduction." It would be very unfortunate for me if that introduction required an eloquent appeal; much rather let it be one of apology for having entered into the company of men not less remarkable for their literary talents than their sound practical skill; these qualities, so rarely combined, confer an honour on any individual entering the ranks of so distinguished a corps, that I confess having entered on the duties of my department with some diffidence: the more so, from the high position my worthy predecessor held in the eyes of the world. Fortunately, the department assigned me is the one in which literary merit is less required than any other. The language of poetry, so inseparably connected with that of "flowers," has seldom descended to notice the more substantial products of the garden; and the whole calling being less refined than the other portions of the ancient craft, will, I trust, be accepted as some excuse for the absence of that grammatical lore in which the Kitchen-Garden Calendar may be deficient; but as we are told, the critical taste of Goldsmith, to

whom the MSS. of *Abererombie* were submitted for revision, sent them to the press unaltered, saying, the simplicity of the author's style was most befitting his subject, I am the more encouraged, from such a high authority, to contribute to a journal bearing such an unostentatious title, but which has furnished directions equally applicable to the garden of a prince as to the peasant; and hoping, from the observations of a good many years, spent in gardening in five counties of England, to be able to assist the amateur in adding to the substantial fare of his table, or the gentleman's gardener in augmenting (or prolonging the season of) his various productions, not forgetting that all-important class by whose name this Journal is known. Having drawn these remarks to a greater length than I anticipated, I must conclude with the hope that the year 1852 (which this number ushers in) may be as favourable to gardening, and to the readers of *THE COTTAGE GARDENER*, as is the wish of the writer of its Kitchen-Garden department.

J. ROSSON.

MISCELLANEOUS INFORMATION.

CALCEOLARIA KAYII.

I AM glad to see such a prominent notice taken of *Calceolarias*, and am happy to confirm the remarks of those who have spoken of "*Kayii*," which has done remarkably well with me, perhaps owing to the situation in which I have grown it, the flower-garden here being situated on a rich, loamy soil, rendered more damp than most gardens are, by being close to, and very little elevated above, a piece of water of considerable size, which is, I think, very essential to the growth of the *Calceolaria*, and some other things.

My beds had all been renewed in the spring—in fact, the garden had been revised and altered, so that my plants had all the benefits of fresh loam, which had been trenched to a considerable depth. It was rather fortunate for me that we had so much dry weather in summer, otherwise I fear many of my *Geraniums*, *Verbenas*, &c., would have become too gross to be ornamental; but, as it was, they did tolerably well, but none better than this very useful *Calceolaria*, which is, I think, a great acquisition to the flower-garden. Its large trusses of flowers of rich bright yellow, must ever make it a favourite, when purity of colouring is required, and I know of nothing to equal it in this respect.—A YOUNG GARDENER.

PRODUCE OF COCHIN CHINA FOWLS.

THE Cochin China Fowls being the breed respecting which accurate information is most required, it seems worth while to give a few authentic facts. In the first place, as to weights, here follows a list of those of Mr. Sturgeon's birds, taken shortly before the late Birmingham Exhibition. Of course, after at least a week's restraint and over excitement, they would be found lighter, and would require some little time to recover their original condition.

WEIGHTS OF MR. STURGEON'S BIRDS.

Cock and three hens. First prize and medal for unusual merit, at Birmingham, December 1851. Cock 11 lb. 2 oz. Hen 8 lb. 10 oz.; do. 8 lb. 5 oz.; do. 9 lb.

Two cockerels and four pullets. First prize and medal for unusual merit; all hatched third week in April, 1851. Cockerel, 10 lb. 12 oz.; do. 10 lb. 8 oz. Pullet, 6 lb. 4 oz.; do. 7 lb. 1 oz.; do. 7 lb. 8 lb.; do. 6 lb. 9 oz.

Two cockerels and four pullets. First prize. Cockerel, 10 lb. 12 oz., hatched in April; do. 9 lb. 14 oz., hatched in March. Pullet, 7 lb. 13 oz.; do. 6 lb. 11 oz.; do. 6 lb. 12 oz.; do. 6 lb. 7 oz.; all hatched the last week in February.

Two cockerels and four pullets. Second prize. Cockerel, 9 lb., hatched third week in April; do. 10 lb., hatched third week in April. Pullet, 6 lb. 8 oz.; do. 7 lb. 7 oz.; do. 7 lb. 12 oz.; do. 6 lb. 11 oz.; two pullets hatched in February, and two in March.

Two cockerels and four pullets. Third prize. Cockerel, 9 lb. 4 oz.; do. 9 lb. 12 oz. Pullet, 8 lb. 4 oz.; do. 7 lb.

3 oz.; do. 7 lb. 7 oz.; do. 6 lb. 11 oz.; all hatched third week in April.

The second piece of statistics respects the productiveness of the race. Mr. Punchard, of Haverhill, Suffolk, calculates that between the Christmas-days of 1850 and 1851, he will have obtained from 35 hens, and their progeny, at least *six thousand eggs*! A note of them, with the respective dates at which they were collected during the year, is appended.

35 HENS—EGGS FROM THE FARM, COMMENCING CHRISTMAS 1850 TO 1851.

Eggs.		Eggs.		Eggs.	
Jan.	1 . . 200	May	3 . . 100	Aug.	30 . . 100
"	10 . . 300	"	10 . . 80	Sept.	6 . . 160
"	17 . . 105	"	17 . . 70	"	13 . . 150
"	24 . . 93	"	24 . . 70	"	20 . . 160
"	31 . . 107	"	31 . . 50	"	27 . . 160
Feb.	7 . . 120	June	7 . . 50	Oct.	4 . . 140
"	14 . . 140	"	14 . . 50	"	11 . . 140
"	21 . . 150	"	21 . . 100	"	18 . . 100
"	28 . . 120	"	28 . . 90	"	25 . . 130
March	8 . . 160	July	5 . . 70	Nov.	1 . . 120
"	15 . . 110	"	12 . . 70	"	8 . . 120
"	22 . . 90	"	19 . . 100	"	15 . . 120
"	29 . . 110	"	26 . . 100	"	22 . . 120
April	5 . . 120	Aug.	2 . . 90	"	29 . . 140
"	12 . . 90	"	9 . . 70	Dec.	6 . . 160
"	19 . . 70	"	16 . . 110		
"	26 . . 70	"	23 . . 100	Total	5445

Several pullets laying.

It may be observed, that birds, to attain these weights, and able to throw off this amazing superfluity of nutriment, must not only be liberally, but judiciously fed. To the growing chicks, the materials necessary to form bone, as well as flesh and sinew, must be supplied. At Birmingham, a Cockerel otherwise perfect, was supposed to have suffered the accident of some injury or fracture in the legs, but he was only rickety. His frame abounded in all requisites, except phosphate of lime to steady his drumsticks. It should be remembered, that quadrupeds suck in this *building material* of their skeleton, with their mother's milk, which contains it in sufficiency, but that gallinaceous birds must take it *with their food*. Therefore, calcined oyster-shells, broken egg-shells, chopped bones, pollard mixed stuff with milk, and such like, should be allowed to be eaten *ad libitum*. Coarse barley-bread is for many reasons an excellent and convenient thing to feed young fowls with. It is a little, not much trouble, to get prepared, and those who once try it will find its usefulness.—D.

TO CORRESPONDENTS.

FIG-FEEDING.—“In answer to an enquiry from *A Subscriber from the First Number*, as to whether I should consider boiled mangold wurtzel, or other roots, mixed with bran, for store pigs, as coming under the head of *Slops or Messes*, mentioned in my article on pigs, I beg to say that for store pigs, I certainly should not consider boiled mangold wurtzel as a slop or mess. Store pigs do not demand such careful feeding as *Fattening* pigs. They may very well be fed on roots and other vegetables, with a very small allowance of dry food; and boiled mangold wurtzel, mixed with bran, would make, I dare say, very good food for them, although I never tried it. A practical writer on these subjects says:—‘In short the juice (of mangold wurtzel) is most excellent for the mixing of most food for pigs. . . . my copper holds seven strike bushels; I put in three bushels of mangold wurtzel, cut into pieces two inches thick, and then fill the copper with water. I draw off as much of the liquor as I want to wet the meal for fattening pigs, and the rest, roots and all, I feed the yard hogs with. If you give boiled or steamed potatoes to pigs, there wants some liquor to mix with the potatoes, as the water in which potatoes have been boiled is hurtful to any animals who drink it. With *fattening* pigs I should not consider boiled mangold wurtzel as desirable food; a little wurtzel occasionally, or some other vegetables, are necessary to keep their bowels in good conditions, but beyond this I should not recommend vegetables as food for *fattening* pigs.’”—W. H. W.

CEDAR LEAVES (J. P. M.).—The accumulation of its leaves under a cedar-tree does it no good, nor would it be good practice to dig them in, but the top layer of them may do some good over peas, to keep off mice, though not so effectual as the small tops of gorse or furze. No tree is sooner improved by a top-dressing of good fresh soil than a cedar. We would scrape away all the loose stuff from under your cedar, and put on a few inches of good rich earth instead.

LAUREL AND HOLLY HEDGES (Ibid.).—Laurels from two to three feet high, plant three feet apart for a hedge, to fill up quickly; and the hollies two feet high, plant eighteen inches apart.

CUTTINGS (Ibid.).—All the plants in your list will grow from cuttings except *Holly* and *Arbutus*, but the cuttings must be put in in August or September. The *Coloneaster* “with red berries,” if it is a trailing evergreen, is *C. microphylla*, and you may put in cuttings of it now, or any time to the end of March. The *Heaths* and other green-house plants will grow from cuttings just as you propose. The *Red Spider* is very fond of *Siphonampylus betulaefolius*. A cover for a volume of *THE COTTAGE GARDENER* costs a shilling from any bookseller, and the binding will be extra, and that you must bargain about with your own bookseller.

CLIMBERS FOR WARM AND COLD HOUSES (E. J. H.).—In the warm house *Panahora edulis* and *quadrangularis* will do remarkably well; placing the first in the coldest part, and the latter in the warmest. The first is not showy, but its fruit is very agreeable to most people. The fruit of the latter is large, and also good; but you will not obtain it unless by artificial impregnation. If you look back you will find the whole process described by Mr. Beaton. For other two creepers we recommend *Stephanotis floribunda* and *Ipomoea Horsfallii*. Four climbers for the greenhouse in large pots, or planted out, might be *Mandevilla sanderiana* and *Ipomoea laevis* at the warmest end; and *Panahora cerasula* *raremosa* and *P. Colvillei*. These would soon cover the roof. For smaller growing things you might prefer the *Kennedy* tribe, and others. Lists and descriptions have previously been given. The temperature is quite suitable for the present; cold house, 40° to 45°, and 15° more for the warm one. The sun as it gets higher will give a higher temperature. The flower and leaf sent belongs, we suspect, to *Gomera elongata*; it will require the warm house. We suspect the cause of its not opening its flowers, is either some check it has received in getting it home, or the very dull weather. If healthy it will yet bloom. It flowers best at this season of the year; when done flowering prune it freely, and let it grow afresh.

LOBELIA, SCARLET AND PINK M. M.—We presume that you have got *Corduloides*, or some allied kind, and *Tupa blanda*. Do not be distressed about their appearance now; let them die down; all they require is to be kept from frost and extreme damp. Towards spring the young shoots, or suckers, will appear through the soil, and then you may either divide the plants, or pot each sucker separately; whether for beds, or pot plants, they are worth that care. When well established, the soil should be light, but it can scarcely be too rich. Either the greenhouse or pit will do, but if you have plenty of room the first will be the safest. In dry warm places they will stand in the open air, especially the scarlets.

CROSSING GERANIUMS (Verbenai).—You are quite right. It would, indeed, be a triumph to get a pure white and a purple like *Unique*, with the habit of *Lady Mary Fox*, or of *Diadematum*; but these colours, if we could get them, would reward us, whatever the habit of the plants might be. Your question is, however, the most difficult problem of the day, but as it is not pressing just now, we will wait to hear what Mr. Beaton will say in his forthcoming enumeration of our bedders.

SUNDRIES (J. H.).—We shall be most happy to assist you against the inhospitable climate on the “north shore near Liverpool,” but you cannot be otherwise than a good gardener after going on so far with “the best publication in the whole world of the sort.” The *Rhododendrons*, *Azaleas*, and *Kalmia latifolia*, you had from Surrey, are as hardy as the Gorse or Broom, and you need not pot them at all, unless you wish to see their flowers a little sooner, and most beautiful flowers they are. We call them “American plants,” which require peat earth, as you will see by the balls about their roots. The standard and dwarf *Roses* from the nursery will not flower well next season if you pot them, but if you pot them now and plunge them in the open ground, they will be ready for another year, and you can take them into the greenhouse after they get a little frost, or any time in January, and that would be time enough to take in the American plants another year. We do not know the Trumpet Lily by that name, but as you have it in flower, send us a single flower and a piece of a leaf, and we shall tell you all about it, or anything else you may want to know, at any time. We suspect you mean *Richardia thiopica*, but it ought not to be in flower now.

TREE PRUNING (T. C. F.).—You had better not disturb your *Tree pruning* for two or three years, as it is very difficult to propagate; and if you should kill such a fine plant you would never forgive yourself. It will

grow well in any good garden soil, and is perfectly hardy, but a late frost is as apt to hurt the flower-buds as to destroy pear and apple blossoms; therefore the right time to shelter it is in April, not in winter, for it is then as hardy as the pear or apple. Your best way to increase it, is to divide the ball of roots into two or more divisions in March, but you must do it very carefully. When the plant is large, one of the outside stems may be split from the rest, so as to carry a few roots with it, and that soon makes a new plant.

ASCLEPIAS TUBEROSA (Eliza).—Keep the roots in a pot of soil, not too dry, and away from the frost, as you would a small dahlia root, until next April; then plant it out under a south wall, or on rockwork, in a warm sunny place. It is a very pretty old plant, rising to 18 or 20 inches high, according to the strength of the roots, and the nature of the soil and situation; light rich loam and peat on a dry bottom suits it better than any thing; something should be thrown over the roots in winter to keep off the wet, as it is rather delicate, and is very apt to die in winter.

ALSTROMERIAS (Ibid.).—Plant your *Chilian Alstromerias* at once; any common light soil will do for them; put the roots four inches under the surface, and put some litter over to keep them from frost. They will flower next May or June; and they will be from a foot to three feet high, according to the strength of the roots.

YELLOW BANKSIAN ROSE (W.).—The Banksian Roses are not at all fit subjects for amateurs to grow in pots. The best gardeners can hardly get them to flower that way. Your only chance is to cut in your plant very close next March, shake away all the soil from the roots, and repot it in fresh soil in a larger pot, and give it two more shifts before the end of August, the last pot to be ten or twelve inches in diameter, not to prune it any next winter, and in May, 1853, it may bloom.

GLADIOLUS GANDAVENSIS, &c. (Ibid.).—This ought to flower in a large pot, but much better if you plant it out in a good border next spring. You need not repot it before the end of January. *Comelina Caletis* should be treated like *Salvia patens*, the roots taken up before winter and put out in April. *Datura metel* is a tender annual, it should be sown in a hotbed at the end of March, and planted out in a warm place by the end of May; it has a very handsome large flower on a weedy-like plant.

KALMIA LATIFOLIA (Ibid.).—Your soil is not at all suitable for it, otherwise it is a most beautiful plant, and a free flowerer. You must give it only very good peat, and water it well in summer.

TEOPHOLIUM TRICOLORUM (Ibid.).—It is one of the freest-flowering plants we have, and the prettiest; but it requires a constant exposure to pure air, and abundance of water after the buds appear. Your root could not have been strong enough to flower last year, but after such a growth as you describe it will certainly flower this next spring, if you attend to the air and water as above; close confinement is the ruin of it in most hands. It would thrive well in a constant draft, no matter how cold, if above the freezing point; and so with all the family.

KOHL-RABI (J. S. G.).—It is usually boiled in slices, and eaten with melted butter. It never increases in size beyond that it attains the first year. A north border overshadowed with elms will grow nothing profitably. You will have seen lately what has been said about a north border not overshadowed.

CLOSE GLASS (J. S. L.).—You ask—“Would it not be well for the glass of a greenhouse to lap close in all cases, where no artificial heat is required?” In our opinion, founded on experience, it would not, even though you use “Hartley’s Patent for the roof, and twenty-one ounce glass for the front sashes.” In such a structure, when the cold is very severe, even those thicknesses will not sufficiently keep out the cold, without additional shelter, and in milder seasons the additional healthiness of plants in an open-lapped structure, far exceeds any trifling saving of trouble required for sheltering in the colder seasons.

DRAINING GARDENS (J. S.).—In your clay soil you must not have the side drains more than five yards apart, whereas in your plan they are eight yards. There is no need to have a side drain so close to the main drain, as you have it at the corner marked E. Do not have the side drains fall into the main directly opposite to each other. Although you are intending to drain still in your northern situation, and heavy soil, we strenuously recommend you to plant above the level. It will save your fruit-trees from disease, and promote the ripening of your fruit.

MELON (T. D. P.).—We know nothing about the *St. Helier Melon*. Try it, but do not depend upon it for your main crop. Grow some other which you know to be good, or you may lose the season. If you mean “the chamber” under the mould of your cucumber-bed, you may heat that to 100°, as that temperature only heats the soil to 85°, but you must not have the air in which the plants grow heated to 100°.

OVER-LUXURIANT APRICOT AND CHERRY (F. Orgill).—By all means open a trench at about three feet from the stem round each, cut through every root you come to in digging down two feet perpendicularly; then clear away underneath, and cut through all the tap-roots. It is quite impossible to tell you “how to make the most of a frame,” unless we know what it is that you wish to grow.

HAMPTON COURT AND CUMBERLAND LODGE VINES (R. D. L.).—The latter, we believe, is about twice as large as that at Hampton Court. The vine at Hampton Court is only 70 feet long, whilst the vine at Cumberland Lodge is 138 feet in length, and is wider than that at Hampton. Each vine is filled by one vine. In 1843 we know that the Cumberland Lodge vine ripened 3000 bunches. *Fuchsia* should be trained in a pyramidal form, the centre stem should be well clothed with branches from the soil upwards.

PEACHES SHEDDING THEIR FRUIT (P. T.).—Our correspondent says, “I have two Peach-trees in my garden, facing the south, trained on the rear wall of a range of cottages, and having a strawberry bed in front of about eight feet wide from wall to path. These trees appear very healthy, and produce abundance of fruit every year, which grows to a full size, turns colour as if ripe, and then falls off in rapid succession, whilst hard and unfit for the table.” Never was a more decided example of the ill-consequences of growing strawberries on a fruit border. If you remove the strawberries from a circuit of five or six feet round each of your wall trees, cover over that space in summer with mulch, and during long droughts give water plentifully twice a week, your peaches will not shed their fruit.

COTTAGE GARDENER’S DICTIONARY (W. J.).—You can have a cover through any bookseller from Messrs. Orr and Co., 2, Amen Corner. We

certainly cannot tell you how the syllables are sounded, nor do we understand how you can make a mistake with the accents.

CYDONIA JAPONICA (M. N.).—You may move this now, but the best time for doing so is November, or end of October. We think you will have found what you require in Mr. Beaton's subsequent notes on *Climbing Roses*.

LIQUID-MANURE (F. C.).—The liquid from a dunghheap will benefit instead of injuring your newly-planted shrubs, if applied when they are growing. This is not the season for applying, but in the spring and summer. We cannot recommend dealers.

CINERARIA MARITIMA, &c. (S. C.).—We are sorry you cannot meet with this and *Caletina ageratoides*, and agree with you in thinking any one advertising them would be remunerated. The *Centipede* is not a foe to the gardeners.

POULTRY DEALERS (F. B.).—They must advertise. We cannot recommend them.

GREAT-FLOWERED HENBANE (H. W.).—We do not think this is to be had of florists yet. *Saponaria calabrica* could be had of any of the large nurserymen near London.

TULIP LISTS (Engfield).—Priced lists of tulips, containing descriptions

of the flowers, may be had gratis of Mr. Groom, or any other large grower of tulips for sale.

KEEPING HEDGEHOGS.—A correspondent (*An Experienter*) in answer to J. C.'s enquiries, says:—"Procure two young ones, male and female; put them in your garden, but if they have not a good warm bed, they will not live; get a barrowful of dry leaves, place them in any out-of-the-way spot in your garden, there put the hedgehogs, and give them acorns, crabs, apples, &c., but best of all, a small dish of milk. They will live on bread, and if you teach them to understand any call, they will come at the signal, and eat at their little trough."

NAMES OF ORCHIDS (A Correspondent).—Your orchid flowers came in tolerable condition, but some of the labellums had lost their colour. They are—1. *Zygopetalum Mackayii*. 2. *Z. Mackayii*, a large var. 3. *Z. brachypetalum*, but so faded, that we are not quite sure we are correct in so naming it. 4. *Z. Murrayanum*.

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From the Critic, London Literary Journal, No. 257, December 15, 1851:—

"A NEW WEEKLY JOURNAL OF NATURAL HISTORY.—We observe that Mr. William Kidd, of Hammersmith, the author of so many interesting and instructive works on Natural History, is about to address himself to the public, through a cheap Weekly Journal of his own. This we take to be a wise step; for the amateur and the experienced naturalist alike require an organ and a friend. Such, we anticipate, KIDD'S LONDON JOURNAL will be; and our readers can judge of the reasonableness of the anticipation, for we have, by means of Extracts from his Essays, published in the *Gardeners' Chronicle* and elsewhere, made them familiar with the generality of WILLIAM KIDD'S mind, and the correctness of his acquirements as a student of nature. KIDD'S LONDON JOURNAL is, we observe, to be the same size as 'Household Words,' and will contain other information than that which the Editor has spent a life in obtaining and generalising."

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As it will be the object of the Conductors to place before their readers information on all the best and newest Flowers and Plants, with Illustrations of them, it will be the interest of Cultivators residing at a distance from London to acquaint them, from time to time, with the existence of novelties worthy of being figured, described, and cultivated. All such communications will be treated with attention and impartiality.

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WEEKLY CALENDAR.

M D	W D	JANUARY 8-14, 1852.	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
8 Th		Lucian.	29.516—29.491	49—27	S.W.	08	7 a. 8	7 a. 4	5 a. 41	17	6 47	8
9 F		Lambs begin to fall.	30.038—29.781	45—23	S.W.	07	6	8	6 59	18	7 19	9
10 S		Black Hellebore flowers.	30.054—29.944	50—39	S.W.	21	6	10	8 22	19	7 37	10
11 SUN		SUN. AFTER EPIPHANY. HIL. T. beg.	30.108—30.034	49—45	S.W.	02	5	11	9 43	20	8 1	11
12 M		Plough Monday.	29.959—29.937	51—47	S.W.	01	5	12	11 2	21	8 25	12
13 Tu		Hilary. Cambridge Term begins.	29.896—29.717	49—44	S.W.	—	4	14	morn.	22	8 49	13
14 W		Oxford Term begins.	29.552—29.263	48—40	S.E.	—	3	15	0 21	23	9 10	14

To no class of men, independent of the practitioners of their own art, are gardeners more indebted, than to those of the medical profession, and the reason for the obligation is obvious. In all ages down to the seventeenth century, physical remedies were chiefly derived from plants; a knowledge of these, therefore, was essential to the dispenser and prescriber of them; plants became their especial study, they collected them from every quarter of the globe, cultivated them to ascertain their properties, and wrote concerning them, to impart their acquired knowledge. It is remarkable, but not surprising, therefore, that all our earliest botanical works are from the pens of men of medicine. Turner, Lyte, and Gerard, were, each, like Parkinson, whose *Herbal* happens to be lying open before us, "a worthy apothecary and herbalist." Indeed, herbalist and apothecary were then synonymous, and Shakspeare was right in describing his apothecary as "culling of simples," and in mentioning no other medicaments but "musty seeds," and "old cakes of roses," for mineral drugs were then rarely administered. The poet might have alluded with equal truth to the apothecary culling when the sought-for herb's star was in the ascendant, for it was believed by those simpletons that each was under the influence of a Planet, and even as late as 1790, Mr. Meyrick, a surgeon and a friend of Withering, "at first proposed, in order to gratify such as are fond of exhibiting medicine astrologically, to prefix (in his *New Family Herbal*) the character of the Planet which is supposed to govern each herb." For the sake of an illustration, if we consult the old herbalists as to the properties of *Hyssop*, we shall find that Culpepper says "The herb is Jupiter's, and the sign Cancer. It strengthens all the parts of the body under Cancer and Jupiter," and Dr. Baileyn, without any allusion to these astrological whimsies, though he lived a century before Culpepper, says, in his *Book of Simples*—"Hyssop is hot in the third degree; it hath virtue to make humours thin and warm. Sudden with figs, rue, and honey, in clean water, and drank, it greatly helpeth the sickness in the lungs and old coughs. Sudden with Grains of Paradise, called *Cardamomum*, it mightily purgeth and bringeth good colour. Figs, salt, nitre, and hyssop, stamped together, and applied to the spleen, help it much, and taketh away the water that runneth between the skin and the flesh. Sudden with oysmel it cleanseth plegm. This herb was used in the Old Testament in the old time of the bloody sacrifice, and the holy prophet, in his 51st Psalm, sayeth unto Almighty God—"Sprinkle me, O Lord, with Hyssop, &c." God grant us all to have such blessed plants of that Hyssop in our garden, which have virtue to heal all sicknesses of the Soul denhed with sin." Contemporary with this last-quoted author, and his equal in rising superior to the astrological darkness of his period, was REMBERT DODDERS, who, although a foreign botanist, deserves mention, if it was only on account of his works being the foundation, upon which our own botanist and gardener, Gerard, founded his "*Herbal*," as Lyte had done his before; but besides this he was an encourager of horticulture himself. This physician and botanist was born near Mechlin, in Flanders, in 1517. He studied at Louvaine; became conspicuous for his learning whilst young; travelled into Italy; and on his return was appointed

physician to the Emperor Maximilian the II.—as he was afterwards to Rodolph the II. The importance of his friends procured his dismission from the Emperor's service. He then practised at Antwerp; and was afterwards appointed Professor of Physic at Leyden, where he died in 1585—6. He wrote on subjects connected with Astronomy, Geography, and Physic, but is chiefly noted for his productions on Botany. He first published in 1552, his *Frugum Historia*, and *Herbarium Belgicum*. But his chief work appeared in 1583, in which he included all his other botanical writings under the title of *Stirpium Historie Pemptades*. Each *Pemptade* is divided into five books. The first *Pemptade* contains numerous dissimilar plants in alphabetical order; the second, Florist's Flowers and the umbelliferous Plants; the third, Medicinal Roots—Purgative Plants—Climbing and Poisonous Plants—with most of the cryptogamia he was aware of; the fourth, Grain—Pulses—Grasses—Water and marsh plants; the fifth, edible Plants—Gourds—esculent Roots—oleraceous and spinous Plants; and the sixth, Shrubs and Trees. The appendix is compiled chiefly from Dioscorides, Cato, and Pliny, relating to the progress of Botany and Agriculture, among the Romans; as well as being in commendation of Gardena, with rules for laying them out, and advantageously managing them.

Turner, Lyte, and Gerard, might well found their *Herbals* upon that of this early continental plant-collector, for among their own countrymen at that period ignorance profound in most of the sciences prevailed. So dense and dangerous was this ignorance among the takers of medicaments, as well as among their dispensers, that it was found necessary, in 1512, to enact that no one should practice as a healer of diseases unless licensed by the Bishop of the Diocese, after examination before himself, aided by four others skilled in leech-craft, and the reason for thus enacting, as set forth in the preamble of the Statute, is that "physic and surgery is daily within this realm exercised by a great multitude of ignorant persons—in which they partly use sorcery and witchcraft, and partly apply such remedies as be very noxious, to the high displeasure of God, great infamy to the faculty, and the grievous hurt, damage, and destruction of the king's liege people." We might quote, if our space permitted, much more in illustration of the same defect of knowledge; yet we must add one more extract from our old Statute book, and that shall be from an act passed in 1541, whereby the barbers and surgeons of London were united into one corporation, "to the intent that by their union and oft assembly together, the good and due order, exercise, and knowledge in the said science or faculty of surgery should be more perfect and speedy!" But, moreover, the Statute goes on to enact that barbers shall no longer practice any part of surgery, "drawing of teeth only excepted;" and that, henceforth, surgeons "shall in no wise occupy nor exercise the feat or craft of barbery or shaving!"

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-four years, the average highest and lowest temperatures of these days are 40.2° and 30.7° respectively. The greatest heat, 56°, occurred on the 14th in 1849, and the lowest cold, 4°, on the 14th, in 1838. During the period, 94 days were fine, and on 74 rain fell.

HAVING shewn in our fifth volume all the details of building a greenhouse for five pounds, we cannot go further in that direction to lessen expense to our readers, and when one of our correspondents shewed us how he proposed to warm his vinery by the mere animal heat given off by his cows, we thought that a great step was taken towards close economy in fuel. It is true we had some doubts as to the practicability of using cow-heat, for we had the fear of dust, &c., before our eyes. However, about two months since, November 23rd, we received from that correspondent the following letter:—

"The cows are again housed for the winter in the cow-house vinery, and very pretty they look with a row of Chrysanthemums on the wall in front of them just coming into blossom. A scarlet Geranium, too, planted in the open ground, and trained on the same wall, looks very well and luxuriant. Fahrenheit's thermometer registered ten degrees of frost last night outside; in the cow-house vinery it registered thirty-seven degrees as the lowest point. We have laid planks across the tie-beams, and loaded them with pots of *Calceolarias*, *Geraniums*, *Strawberries*, &c. &c. The vines have grown extremely well, and next year I intend to force them to break about a fortnight before they would do so naturally, and let them bear a few bunches, as their bearing

will be the test of success. At present I am sanguine as to the result, so much so that I have just finished another double cow-house, glazed also in two ridges, of 10 feet span each, and 150 feet long, with the intention of adding to it annually. The dust, as you foretold, is troublesome, but then we made it worse by having the cows curried and brushed. The last cow-house is most admired, and I have had several applicants for permission to sketch it for publication. If you wish for a plan you shall have one."

We have accepted this offer, and our readers shall benefit by it so soon as the drawings are received. Cows, however, are not available to everybody as sources of heat, and as we are continually applied to for information as to cheap modes of heating, we were glad to be informed that Mr. Pannell, 56, Fetter-lane, Holborn, had exhibited, in the Crystal Pavilion, a very cheap and very effective heating-apparatus. We were told, moreover, that he had erected one at Park Hall, Barlbrough, near Chesterfield, and from Mr. Henry Barnes, the highly intelligent gardener there, we received the following particulars:—

"I feel a pleasure in stating that we have lately erected a forcing-house, which is heated by Pannell's appa-

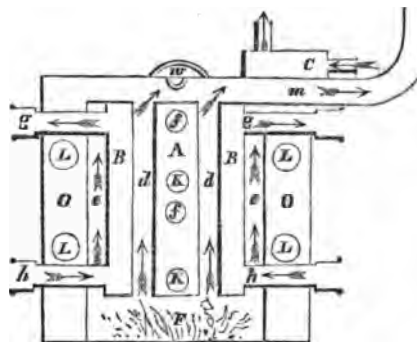
ratus, a model of which was shown at the Exhibition, and it is giving us perfect satisfaction in every respect. The house altogether is a cheap one; the dimensions are thirty feet by twelve feet. We have a walk through the centre, and a bed at back and front; one for the growth of cucumbers, and the other for pines. The bottom-heat is supplied by stout zinc tanks, two feet wide and three inches deep, passing under the beds, and the house can be filled with vapour from them, if required, by means of ventilators on each side of the walk. For top heat we have three-inch flow and return pipes, passing along the front of the house over the flue which is carried inside close to the front wall. The pipes are supplied from a large zinc feeder, which stands at the end of the walk, and is connected with the flow and return pipe by one-inch lead pipes; this throws off much heat at the coldest end of the house, and supplies us with warm water. The flow and return pipes, from the boiler to the tanks and pipes, are one-inch lead pipes, and by means of stop-taps we can heat all or only one at a time, although they are on different levels. The boiler is very small and cast with four arms."

Finding that the plan was successful, we next obtained from Mr. Pannell the following details:—

"I will first explain to you its capabilities, namely, to give a moist or dry bottom-heat. If a moist heat, as for pines, cucumbers, &c., then, *when required*, to give a dry top-heat to absorb the superabundant moisture in dull winter weather; but when solar heat can be had, then to turn the top-heat into the tank underneath. For growing melons, to give a dry bottom-heat, and top-heat also, and if a little moist bottom-heat is required, to be able to give it. To heat churches, or any other buildings, baths, &c. in the most economical manner. The apparatus consists of a retort boiler, two feet high and five inches diameter, with two flow and two return pipes, a circular boiler, in which the retort is enclosed, fourteen inches in diameter at bottom and twelve inches at top, with space left for the flow and return pipes of the retort to go through, which, when set, is filled between with brick, but the space is but three inches wide, so that it is soon stopped. The space for the water in the circular boiler is two inches, and it has also two flow and two return pipes; also a flue running round the outside for fire draft three inches. Then, I have a plate over the top with a boiler cast in, nine inches by six and three inches deep, with a flow and return in that, so that when the fire is lighted the retort boiler is completely enveloped in fire, the inside of the circular boiler also, and a fire-draft round the outside also; then, the fire in ascending to the flue strikes against the plate boiler and heats it, so that I think I have economised the fire in almost every conceivable way. I have a supply hole in my plate to back the fire up with at night; and when I want to generate steam, I have a tin boiler made to fit the hole, by which I can generate steam to fill the house quickly. I have, also, a hot air chamber round my brickwork, and by having a cold air drain in at bottom, cause a continual flow of pure rarified air to be brought into the house, which, I think, makes my apparatus complete. The price for the apparatus complete, and superintending fixing, is £8 8s., a third-class fare by rail from and to London, and my refreshment, &c., where I go. I will undertake to provide cast-iron pipes, of any size required, as cheap, and I think cheaper, than can be had anywhere in London, as I have it all cast at a furnace in Derbyshire where the iron is made."

"I herewith enclose you a sketch, or I may say a vertical section, of my heating-apparatus, with a referential explanation. *A* is a retort boiler, two feet high, set in the centre of a circular boiler, *B B*, which has an opening to allow the two flow and two return pipes to pass through; *g g* are two flow, and *h h* are two return pipes to the circular boiler, *B B*, which is the same height as the retort, and is fixed so that the fire acts quite round the inside, and nearly all up the outside, as shown by the arrows; at *F* is the fire-place and bars; *L L L L* are two inlets and two outlets into a hot-air chamber, *O O*, which conveys a constant stream of warmed air into any part of the house required. *C* is a boiler, cast in a plate two feet wide and two feet six inches long, and is laid over the fire-flue, which is shown by the arrows and *m*, by which, the fire passing along the flue, the

water is heated, and carried either to the pipes, or tank, as required; *w* is a circular cover, fitted to a feeding hole in



the plate, for the convenience of making up the fire at night, which can be left for ten or twelve hours; *d d*, and *e e*, are parts of the flue communicating with *m*. The apparatus can be applied so as to give a moist bottom and top heat, or a moist bottom and dry top heat, or a dry heat altogether if required. In fact, I think I may truly say it fully answers the appellation I gave it, namely, *The Artificial Climate Producer*. It can be regulated by stop cocks, and applied to any hot-water pipes, or tanks, now in operation, if required."

PEACH FORCING.

ABOUT the middle of January is an excellent time to begin Peach Forcing, and if all goes well, first-rate fruit may be expected a little before Midsummer; they will both possess more flavour, colour, and size, than those from earlier attempts. To have them in May—and they are seldom produced earlier of any quality—forcing must begin in the early part of December.

The first process is to put the house in order. It not unfrequently happens that some defect has occurred in the trees; something that requires re-arrangement; perhaps a fresh tree to be planted. When such is the case the old soil must, as far as possible, be excavated; and this, where other trees grow near, is a somewhat nice operation. There are many fine kinds adapted for in-door work, and amongst the rest, the *Royal George* is always in high esteem; for it is not only good, but large, and of a very hardy constitution. We would, however, strongly recommend the old *Bellegarde* or *Galande* as, in our opinion, the one best Peach in the kingdom; in flavour decidedly superior, and scarcely second to any other in size; whilst it will produce a smaller proportion of "crabs," or tasteless fruit, than most others.

The old and worn-out soil must be removed, then, to the very drainage, and all soil extricated from the roots of the adjoining trees that their roots will permit; and, indeed, it is necessary to take some liberties in this respect to steal a march on them; an opportunity is thus afforded of renewing or refreshing the established trees. The drainage, of course, will be examined, and, if anyways deranged, set right; for no success can be hoped for with the *Peach* and *Nectarine* if the bottom be stagnated: the utmost freedom for the escape of moisture is requisite both in the soil and subsoil. We have known a house cast most of its fruit annually through stagnation of soil alone. A depth of thirty inches may be allowed in-doors, and nearly three parts of the compost should be a sound loam, such as the nursery-men about the Metropolis approve of for general pottling purposes, and known by the name of Norwood loam. Not that we would have everybody go to Norwood; it is merely pointed to as an example. Neither should it be understood that this celebrated Norwood loam is the very best in all England; for it is probable that, let a person be situated in almost any part of the kingdom,

there is as good loam for the Peach within two miles of him. There is no occasion to make so much fuss about colour, although most practical men consider a yellow, or light hazel, as most pure: be that as it may, *the texture* is the main thing, and we prefer it exactly intermediate between what is termed very stiff loam, and sandy loam. It is good practice to place a layer of half-decomposed old linings in the bottom, on the drainage, about four inches thick; we have always found a valuable body of fibres nestled in this stratum. As material for mixing with the loam, there is nothing better than the last year's hotbed, chopped up coarsely with a sharp spade, and by no means too much decayed. This, and some gritty material, as sand and charcoal grit—that is, small but not dusty—are eligible; the object in using imperishable materials being to secure openness in the soil in a permanent way; for without the introduction of such materials, if the loam be rather adhesive in character, a free percolation of moisture cannot be established in a durable way.

We have thus planted a Peach of some ten years of age in the last week—one removed from the walls to the peach-house—and the materials alluded to were filled in regularly: one man tossing in the loam, another the manurial matter, and a third the materials to open the texture. A very little long littery dung from the stable-door was strewed continually, in thin fragments, as the filling proceeded; the litter continues in a state of elasticity for some years, which is of much benefit to the roots of trees. The tree in question has branches nearly ten feet long, and roots of a corresponding length, and the situation of the bole inside the house allows the roots to extend about three feet outside the house, through a couple of arches. The soil outside is prepared in like manner; but we have only half-filled the excavation outside, intending to apply a body of fermenting manure over the roots immediately—that is, a fortnight before closing the house; it being now December 24th.

The trees growing in the house will require a little attention at the root: the surface of the border always becomes powdery, and, of course, loses both texture and quality. This should be all removed by loosening it an inch or so, and sweeping it clean off. It may be replaced with the loamy compost recommended for planting the new tree in; and on this we lay a coating three inches thick of fresh horse-droppings; thus leaving a rich and pervious surface. Pruning, if not hitherto performed, must be speedily accomplished; and a few general hints must suffice. In the first place, in-door Peaches seldom require the amount of pruning those out of doors require, and that for two reasons. In the first place, their wood is, or ought to be, perfectly ripe; if any be unripe, it is most likely those robbers, or very gross shoots, which unfortunately were not *growth-pruned*; and in the second place, most in-door Peaches have more attention bestowed on them during the growing season, and there is less superfluous spray. Shortening back, therefore, must be resorted to with much moderation; indeed, the chief reasons are to induce a liberal supply of successive shoots, and to remove portions crossing each other, or for which there is no room. Where there is trellis space to be occupied, the shoots may be laid in full length, unless they appear spongy; when as much as appears immature may be cut away, remembering to prune to a wood-bud, or to buds in threes. A recent paper on the pruning of the Peach and Nectarine may be studied by the uninitiated; this will save needless repetitions here. Of course a judicious thinning-out will be practised, and the lowest shoots in the "forks" cut pretty close back for succession wood, not allowing the latter to bear.

Dressing.—The application of a dressing, applied all over the shoots, is as essential as with the Vine. It is to be presumed, let the previous treatment of the

Peach be ever so excellent, that the scale, the red spider, and the aphid, lurk unseen in some parts of the trees: this must always be taken for granted, and measures adopted accordingly. The moment the pruning is completed, a sort of quarantine may be performed, as with the vinery, by stoving with sulphur; at least, such is our practice. This, however, is not a forty days' affair, as in nautical matters; half-a-dozen hours should suffice. Every plant with a living leaf must be removed from the structure, and a handful or two of sulphur, mixed with a good deal of dry sawdust, thrown over some hot coals at each end of the house, closing, of course, every aperture; this over, the dressing may proceed. Some use lime, soot, and sulphur; we have been in the habit of using sulphur and soft-soap, the latter beat up three ounces to the gallon, and to this we add clay-mud, so as to thicken it to a paint. A gallon of water may receive four handfuls of sulphur. This, well mixed, is rubbed into every crevice, and over every portion of the tree; and we give a second application. Any amount of lime may be added with impunity; and for the first coat, at least, it will be well to do so, as it will show the operator, when it is dry, any portion that may have escaped his notice. The latter coating may have the glaring colour subdued by mixing a good deal of soot with it.

To conclude the operations, the trees being duly trained, the house should be lime-washed, or otherwise cleansed, using much sulphur in the lime-wash, if any. As for painting, it *may* be done, but it is better done in the autumn as soon as the leaves fall.

Flues, boilers, pipes, &c., of course, will be set in high working trim; and now, let us examine the first steps of the Peach forcer. Like other forcing, the more gradually the buds are allowed to develope, the more regular will the trees bud, and the stronger will be the bloom. It must be remembered, that under all circumstances, it requires a certain time for the blossom-buds to open their folds, and develope and augment their parts, and that any severe infringement on this law of Nature is almost certain to produce either deformity or imperfection of parts, leading either to abortion or to utter destruction. By all means, then, let the Peach forcer take time enough in the unfolding of the buds. During the germinating period little more is required than to sustain a permanent, though moderate, amount of atmospheric moisture, and a thermometer of 50° to 55°. There is little occasion to make much distinction between day and night until the first symptoms of leaves appear. If, however, a very low temperature exist outdoors, do not attempt to keep up a prescribed amount of heat; let it sink to 40° if needs be, it will rather be beneficial than otherwise.

The Peach has a great aversion to a saturated atmosphere, yet loves a genial, moderate, and *continuous* amount of air moisture, whilst the germination is proceeding. Fermenting materials, or a course of air moisture, is preferable, in our opinion, to much syringing; and herein we agree with the Dutch school of Peach forcers, who have ever been notorious for this mode of proceeding. Where no chance of introducing fermentative materials exists, we advise that all floors, walls, &c., be sprinkled as frequently as possible, early in the morning, at mid-day, and at night, which, so far from being an injury, proves of immense service. We do not say sprinkle *your flues*, and "raise a steam," as it is termed—this is another affair; such may suit the regular bibbers of the vegetable world, but will not be found a consistent course of practice with such sensitive subjects as the Peach and Nectarine, beneath the murky skies and damp air of Britain, during the dead of winter. As before observed, the Peach, if we understand it aright, is equally averse to a continued humid, and by consequence, stagnant air, as to a dried one; a moderated, yet permanent degree, therefore, is best.

As soon as the blossom-buds show the colour of their corolla or blossom-leaves, the air heat may commence the ascending scale. And here we would beg of our readers to make a proper distinction between day and night heat. From many years' observation, coupled with the opinions of men eminent in the profession, we feel assured that it is a complete fallacy to hope to make any useful advances in the forcing art, as applied to the Peach, by high temperatures during the night, beyond what a due regard for the health of the tree will warrant. No—it is with light alone that we can make *real* advances. A thermometer of 50° to 55°, is amply sufficient, except on bright days, at any period up to the stoning, when increased solar light, and with it an increasing demand on the energies of the tree, both require and justify an advanced thermometer. Indeed, if very severe weather occur at any previous period, we should rather prefer a temperature of 40° to 45°, than pile up huge fires to attempt a higher pitch. No doubt, some respectable practitioners will differ with us about it; so be it, we cannot but write what we feel assured is safe and sound practice.

When, however, the leaves are well developed, when the swelling fruit plainly intimates the need of an ample supply of the material for growth, which can alone be furnished by a free development, and a healthy and powerful elaboration through the agency of solar light, then, we say, let there be no mincing; let the thermometer rise freely to 75°, *with air*, in the forenoon, and close at 3 to 4 p. m. (with a bright sunshine on the roof), encouraging 80° to 85°, for an hour or so.

We must resume this matter in due time, and talk about root-moisture, liquid-manures, and some other accessories to the production of fine fruit.

R. ERRINGTON.

JANUARY NOTES FOR THE FLOWER-GARDEN.

Four times within the last five-and-twenty years, gardeners were caught nodding by such a winter as the present; everything went on swimmingly till after the middle of January—sweeping and rolling lawns this week, and up to one's knees in drift snow the next. The only plant that I have to look after this month is a rascally elm tree, at the farthest end of the garden; he and the bank will be levelled to the ground, however, ere long. But those who have the care of half-hardy plants ought to provide against a worse levelling by frost and snow, or by damp and confinement in pits and other places. I was in one of the best nurseries near London the other day, looking out some fruit-trees and hardy climbers for a gentleman. It happened to be one of the finest days we had this winter. The best point of practice which I observed in this great nursery, was a plan of *watering plants in winter*, which was first recommended in THE COTTAGE GARDENER, I mean flower-garden plants and half-hardy things of that sort, which are kept in frames and pits. Instead of watering them in the frames, the pots were turned out on the paths early in the day, and there watered; the weather was very dull for the three previous weeks, and, of course, these pots had no water all the time, and the frames stood much in need of a good looking over—that was easily done when most of the plants were out; and all this being so arranged the pots were put back late in the day. I saw the same process going on the day I went down to Claremont, and I am very sure they were at the same work at Shrubland Park on these two days. If, therefore, the first gardens and nurseries all over the country, or rather the people who attend to them, find it impossible to keep their plants, not from moulding, but in good sound health and vigour, without this kind of supervision, how diligent should the amateur be to seize the opportunity of every fine or promising day for

looking over his pot plants in winter; and how careless it must look to see a lot of little things in pots, with damp, and dead, or dying, leaves, and with all, the watering-pot flooding away right and left inside the pit.

Although it may seem out of my beat, I must notice one plant, of which I saw a large stock in this nursery, prepared for forcing for the drawing-rooms; I thought I had seen all the plants fit for this branch of gardening tried already, but this one escaped my notice. It is a low trailing evergreen, from North America, called *Epigæa repens*, which we used to grow in the shade of Rhododendrons in damp peat beds, like the *Gaultherias*, or *Cranberries*. The habit of the plant was made the most of here, for the pots were set under a greenhouse front stage, and the drip from the watering of the pots on the stage seemed to agree with it very well, for no plants could look better. I was told it forced as easily and with as much certainty as a Rhododendron or Azalea, and that the flowers were very sweet and much sought after in the spring; which must be true enough, otherwise they would not go to the trouble of getting so much of it ready as a trade plant. Therefore, I recommend it to gardeners who have to furnish quantities of forced plants for the rooms.

If the weather holds up this month, it is not yet too late to put in *cuttings of all those beautiful climbing Roses* which I wrote about lately; *Jasmines*, *Honeysuckles*, and a great many things of that class, will also come from cuttings, if they are got in before the end of January; but, at this late season, there ought to be a good quantity of sand put in for the roots to strike into.

Those who are troubled with *bad rose soil*, ought certainly to attempt a better sort of stock. Almost any of the strong-growing Hybrid Chinas will make better stocks for dwarf roses than the dog rose in bad or very light soil; but although the *Manettii* is now the most generally used of this class for stocks, I know a garden where it does not do at all, which is very strange, seeing that in another garden, hardly a mile off, and with similar aspect, situation, and soil, this *Manettii* is found to be the best stock of any. One good thing is, there is no more trouble in getting up a lot of it from cuttings than of the common willow; but unless the buds at the bottom are well picked out of the bark before the cuttings are put in, it will be a dreadful teaser with suckers, so much so, indeed, that it is much better to root out a suckering plant than to bud it.

While on the subject of making cuttings, I must mention a standard which I saw in a country village the other day, for I had no idea the thing could be so well done, it was the *Japan Honeysuckle*, the finest of them all; the stem was more than six feet high, and as smooth as a gun barrel, and the head was as much like one of those weeping standard roses I mentioned a few weeks ago as anything could be; it really was a beauty, in full leaf, for it is nearly an evergreen, and there were lots of flower-buds on it, and I dare say it has been in flower since last May. In country nurseries they call it *Lonicera flexuosa* and *Lonicera Chinensis*, and sometimes a *Caprifolium*. It is a great bother when plants have so many different names, but there is no help for it, and it does not much matter in this instance, for almost everybody knows it by one or other of these names. Cuttings of it, with the bottom buds taken out, and put in now, will make similar standards some day as easily as a red currant, and so will our own native honeysuckle with a little pains; the only treatment required is to lay a right foundation at first, and this is a very good time to begin. Almost all the Honeysuckles and Jasmines make as good pillar plants as the Roses, only the strong-growing ones require poles at least ten feet high. This might be kept in mind, and when the shrubberies are dressed, they and many other trailing or climbing plants might be formed into tall pillars, where they

would look well spiring up here and there among the round-headed shrubs.

About the end of January is the best time to trench a border for *Alstromerias* and the spring *Gladioli*, and both ought to have a portion of fresh soil from a common or hedge-bank. No manure is half so good for them as rough fresh soil, with all the dead leaves, roots, and rotten herbage, and all this to be packed in the bottom of the bed or trench as the work proceeds. I know a nurseryman famed for healthy bush plants of all descriptions, and he told me the only secret in the thing was his using large quantities of top soil from a common, hard by, every year at the winter digging, and that he preferred it to the best rotten dung, and I believe he is right; the only objection to this kind of dressing is the quantities of wild seeds which we must thus take in to increase the weeds next season; but if the roots of perennial weeds are picked out, seed weeds are easily kept down.

Every means within one's reach for enriching the *Rosary*, or rose beds and borders, should be made the most of now, when less company, or fewer visitors, are expected than at any other time in the year. The strongest, most common, and most disagreeable kind of manure is, without any doubt, the very best kind for producing the finest roses; rich, dark or brown runnings from the pig-sty is the next best, and that from the stables or cowhouse the third best, and this last is better than rotten dung from the farm-yard. In applying the strongest, the best way is, first to draw aside a couple of inches of the top soil round the plants, and forming it into a basin; then early in the day, or when no one is about, the cesspool, where all house-sewage runs, must be reached, and for every gallon of this sewage add three or four of pond-water, and let every rose in the garden have a couple of gallons of it; the soil will fix all the best parts, and the rest will drain away, and as soon as the surface is a little dry, level back the earth, and in half-an-hour no one can make out what you have been doing. The best rose growers reckon on three dressings of this kind, all in winter, to be equivalent to three or four inches of rotten muck spread all over the ground; and on very light soil it would not be too much to say that it is as good as six inches of muck if the cesspool is of the general run. There is no other way to make light soil keep close, and at the same time sufficiently porous, as this; you may put six inches of clay all over a bed, let the frost crumble it down, and work it in when dry next March, but that bed will sooner get dry next June than the one with the liquid stuff, after a few applications, and here is a proof. I said the other day that the chalk under a rose-bank was like an open sieve. A few days back we dug out a large hole in this chalk, ten feet deep and eight feet in diameter, and when finished, some wise head advised to have it bricked all round in cement to hold the kind of liquid-manure for which it was made, but Mr. Wells, the foreman, who made it for me, said, "That was all stuff;" the thing would soon cement itself, and if it did not, it would be time enough to brick in cement when he failed; and he was right. In less than nine months all the cement in the country would not make it more water-tight; but at first, when the drain from the main cesspool, which held the house-sewage, was led into it, the water escaped as fast as it went in, but it soon cemented itself all the way up, as Mr. Wells said; and there it is to this day, and will last as long as the good stuff runs into it. Now, here is a good practical lesson for every one who has a house and garden, and this is just the right time of the year to learn it, and make the best use of it. Every house has, or ought to have, "another place," as they say in parliament, and instead of clearing it out all at once, as did Cromwell and Louis Napoleon with their par-

liaments, draw upon it by degrees, through a long drain, and let this drain empty itself in a large hole near the rosary, and from the other side of the hole let off another drain for fear the hole should overflow; unless the place is pure sand, you need not fear about the hole keeping the drainage; indeed, sand itself is no obstacle if you can keep the sides from falling in for the first six months, and that might easily be done with rough slabs from the sawpit; but like the proof of the pudding, I have proved this also, and the tank which supplies the kitchen-garden at Shrubland Park with liquid manure is cut out of pure white sand and nothing else, and not a single drop does it lose all the year round; but at first we had to slab it all round. Any poor labourer now out of work could make a tank of this kind in a few days; and no money was ever laid out to such advantage for any garden. The only difficulty that I can see is the drain from the other place to the tank; if it must pass near trees or through the shrubbery, it must be laid with pipes having sockets, and be cemented at the joints, otherwise the roots will be sure to find their way into it, and in time choke it up altogether. Then, if one had a choice of situation, I would recommend the tank to be made square and long, for capacity, and not more than a yard deep, nor wider than four feet, then a man could scoop out the contents at any time without going into it, and it might be covered over with rough wood and earth, leaving only a square hole somewhere near the middle—not at the ends or sides, because then they would break down the sides getting out the stuff. I am not sure that a tank of this kind would hold the liquids from a stable, cowhouse, or farm-yard, because I never tried it, but I think it would after some months; but I am quite certain that there is not a chance of failure in making such a tank in any kind of soil whatever, to hold itself brimful from the other place. There was a good deal said in some of the early numbers of THE COTTAGE GARDENER about cheap tanks, but my experience of those mentioned above was not sufficient then to warrant me to say anything about them, but I had often wished to recommend them since, only I forgot them at the proper time.

Rhododendrons, *Azaleas*, and other American plants, are multiplied by the thousand from seed, and this is the proper time to look after it, as the pods will soon burst when the sun gets a little more strength. This is also the best time to sow it in-doors if one had the convenience of a little extra heat; the seeds are so small, and the seedlings so easily go off in hot or sunny weather, that amateurs, and even some good gardeners, seldom make a good hit at rearing them, but at this dull season they are much more easy to manage. I have seen whole boxes of them sown as thick as mustard and cress in a little heat in January, and come up without a gap. As soon as the surface looked green with their tiny leaves, the boxes were put into a greenhouse, and when the sun came out strong, they were shaded in the middle of the day with single folds of newspaper, and before the end of April they were fit for transplanting. I am of opinion, however, that the Evergreen berbery (*Berberis fascicularis*) will soon supersede the *Rhododendron* as undergrowth for plantations; as, go into what garden or nursery you please, you shall see thousands upon thousands of them planted in beds and rows ready for "turning out;" and I wonder the directors of the different railroads do not cover the banks of their lines with it, for it seems to be the very best of all plants for the purpose, as it will grow on every variety of soil, and on the steepest bank, either in the full sun, or in perfect shade.

I saw something new to-day with which I was much pleased—a new garden wall just finished. The coping of the wall is made of slabs of half-inch slate, and pro-

jects three inches; the slate is laid in cement, and over it a finishing course of bricks, also in cement, the bricks standing lengthways across the wall, and I never saw a neater finish. It was recommended to the gentleman, in my presence, to run three lengths of wire along this top by means of T pieces, just as they train wires up a rafter, the bottom part of the T being a wedge to drive into the brickwork, then to plant the strongest of the running roses on the outside of the wall between the fruit-trees, and train them up with a single stem to the top of the wall, and train them right and left on the wires; the roses to be planted from fifteen to twenty feet apart, according to the distances between the fruit-trees; and I began to think what Mr. Errington would say about this kind of decoration, but, after a while, I recollected that the same idea was recommended, many years since, in "The Gardeners' Magazine," and, I think, by Mr. Gorrie, of Annat Lodge, in the Carse of Gowrie.

D. BEATON.

FROSTED PLANTS.

For the few misfortunes, the cry of which has reached our ears, the quick transitions in the weather, the suddenness with which frost has come and again departed, may plead not an apology, but some extenuation for inattention and its consequences. Everything is so quiet, calm, and serene in the evening, that plants are left standing close to the window frame without even the intervention of a blind. Pits are left uncovered, and perhaps a little air on, and then the wind, which, at bed-time, was veering a little from due west, reaches due north, whilst we are snug and comfortable in bed; and the waning moon, rising about two or three o'clock, is attended with such a galaxy of stars, that, were we only awake, would at once tell us that the radiation of heat from the earth was proceeding rapidly, being totally unobstructed by any mantling of clouds, but the results of which we first learn by the effects produced on our nose and fingers as we step over the threshold in the morning; and secondly, when, to our alarm, we find the leaves of our plants stiffer than the glazed material which the clever artistes manufacture into artificial flowers. Even in such a case as this, far from uncommon, the experienced man, who gives himself time to think, is not helplessly nonplussed. It is seldom that the first mornings' frost, in these circumstances, is powerful enough to commit irreparable injury, unless we assist the mischief with our own imprudence. If plants in the window are removed to the *darkest* and *coldest* place possible, just a little above the freezing point, the leaves will thaw gradually; if sprinkled at all, the very coldest water should be used, but it is quite as well to use none at all. The pit, on the same principle, must be shut up, and then covered up from both the light and heat of the sun, which generally shines brilliantly after such a morning, and until the warmer air, in spite of your covering, has gained access by degrees, and combined with the heat radiated from the interior of the pit, has been sufficient, thoroughly but *slowly*, to thaw the frosted plants, not a *glimpse* of sunlight should they receive. In my younger days I have seen frosted plants irreparably injured by allowing a bright sun to thaw them. Then we had little but that hard, drubbing schoolmaster, experience, to guide us; no cheap sterling gardening literature, explaining the "*why's*" and the "*how's*" was open to our inspection. What was excusable *then* is inexcusable *now*. Privilege must ever be associated with responsibility, and that responsibility is now more than ever felt. Feeling everything the reverse of a shade of envy, it requires not the foresight of the Seer to perceive that rising youth will soon take the place of our veterans as teachers and instructors. With all our knowledge, however, the want of a little

forethought, a little reflection, often causes us to fall into sad blunders. Not long ago, some nice plants in a window very highly frosted, were ruined by removing them from one room and placing them close to a bright fire in another. In another case, they were equally ruined by sluicing them all over with warm water, and yet the actors in both cases were so generally intelligent that they would have looked mocking laughter, had you hinted the idea of placing frozen meat, or frozen vegetables in boiling water. The law of extremes must, therefore, ever be guarded against. But as prevention is better than cure, it is better to prevent the plants ever being frosted. Moving plants from the window to the centre of the room, and, in extreme weather, throwing a cover over them there, will generally keep them quite safe. With respect to pits, the inexperienced had better cover them every night during winter. The best mode of doing so, and the principles involved, have been fully alluded to. When the night proves fine and warm, there will thus be an unnecessary labour, but then you can sleep without night-mare visions of frost. As the first night's frost is seldom severe, the covering may be slight, and removed in a mild morning, the first thing. I advise this covering in all such cases, because no signs can be safely reckoned on.

As some, however, might wish a few omens to be a sort of secondary guide, I will mention the following. During winter, whenever the atmosphere is clear, expect frost, unless the external temperature is high. The free radiation of the heat from the earth produces cold. When the weathercock points in the direction of east and north, expect cold. With the wind in these directions, and a clear atmosphere, we may expect it to be most severe. Approaching at, and a little past full moon, the temperature of the night will, in general, be as equable as could be consistent with a growing intensity of cold from a continued clearness of atmosphere. In her first quarter, other things being equal, we have generally the greatest degree of cold from sunset to moon-setting. In her last quarter we have generally the greatest degree of cold from moonrise to sunrise. Of course, I do not hold out these as anything like certain rules, but as a sort of leading-string, the result of many observations. In the case of plants very slightly protected in these December and January nights, I should sleep more comfortably when I knew the moon was gone to bed before me. If she rose long before me, and brought a clear atmosphere with her, I should expect to have something to do as soon as I got out. Taking these at their nominal value, safety consists in due preparation. What at times is lost in labour, is saved in anxiety, and the avoiding, now and then, of an unpleasant disappointment.

There are two things connected with the management of cold pits, which many of our friends do not seem fully to comprehend, though they have been often alluded to. First, they have no idea how plants can be kept in such places, as well as in their greenhouses, however dry and secure the walls, and however carefully covered, and they object to "the continual trouble and litter!" True, but then there is nothing got without labour and trouble; and these given, many of our greenhouse plants will succeed better in one of these dry, nice pits, than they will do in our pretty houses made to look at. In fact, in *very severe* weather, the plants in the latter structure can only be *easily* kept in the highest health when something like pit treatment is given them. This will at once be seen by those who last season read what was stated about the temperature and the ventilating of houses, the capacity of heated air for moisture, &c. A strong artificial heat inside would only aggravate the mischief. Instead of increasing the difference in severe weather, we should try to approximate the temperature inside and outside of the glass by reducing the interior

to the point of safety, and increasing the exterior by any such modes of covering as we give to pits and frames. Heat will be radiated from the outside surface of the covering into the atmosphere, but there is the space between the glass and the covering, and the greater the space the better, provided the covering be air-tight; the heat radiated from the glass to the covering will, to a certain extent, be radiated back again, just as the clouds radiate back the heat to the earth in a cloudy night. And thus the glass, if covering sufficient be used, will never be so cold, as injuriously by its radiation, to lower the temperature inside; and if so applied to a house, as well as a pit, there will be no danger of ruining the plants by a dry atmosphere sucking their life-blood from them.

Another difficulty some of our friends feel, is the ever-and-anon attention to *light* and *air*, recommended to be given to their plants, whether in pits or houses. And then, again, the talking complaisantly of keeping these and similar plants shut up in *darkness*, and *no air* reaching them for days and weeks, in severe cold weather. The difficulty vanishes when you recollect that every growing plant almost that we cultivate, requires light and air *when so growing*. It is only when the growing principle is reduced to its minimum, that the shutting-up principle can be *safely* resorted to in the day as well as the night. Every stimulus to vital activity must be withdrawn. Heat, in unison with moisture, is the most powerful of these. Place plants in such circumstances, and the effects would be ruinous. I once saw a bed of *Cinerarias* plunged in a slight hot-bed, in a frame, in the end of February. A severe frost came, dung linings were placed round them, so cold was it, that they could not be uncovered for a week, and then they were *such a sight*! In a cool temperature, ranging from 33° to 38°, however cold and stormy the external atmosphere, they would have received no harm, though deprived of sun and air for several weeks. External vegetation looks none the less healthy after being covered a month with snow. R. FISH.

ALLOPLECTUS CAPITATUS CULTURE.

A TRULY noble stove plant, belonging to that numerous order the Gesnerworts, but departing enough from its type, *Gesnera*, to cause it to be separated from it, and form a genus under the above name, given to it by Sir W. Hooker. It is a plant growing two or three feet high, producing its head of flowers upon a stout crimson-coloured stem; the corolla is short, tubular, pale yellow, and thickly covered with hair-like appendages pointing upwards; the calyx is five or six parted, short, thick, toothed, bent-back, and of a brilliant crimson colour; the leaves are very large, opposite, of a dark green colour, with the centre rib of the same colour as the stem,—forming altogether, when in bloom, as fine an object as the stove produces. It was introduced to European gardens by Mr. Linden, of the Brussels Nursery, from the Andes of Columbia.

Soil.—Like most of its relatives, this plant requires a light rich soil. We have found the following suit it admirably:—Very turfy loam in lumps, not sifted; fibrous peat, the turf cut into small pieces, and used in that state; and half-decayed leaves; all these, mixed together in equal parts, with a quantity—probably one-tenth of the whole—of fine white sand.

Potting.—The best season for this is in early spring. Pot freely—that is, use pots twice the size of the pots the plants are growing in; drain well in the usual way, and cover the drainage with a thin layer of rough charcoal; then place a layer of the roughest parts of the compost upon the drainage, and place the plant upon that, with the ball just level with the rim of the

pot, fill in the soil all round it, pressing it down but lightly, and finish with a thin layer of the finer parts of the compost. When all is finished, give a gentle watering, and place the plants in a house where a good moist heat can be kept up, such as that of a stove, propagating pit, or house. Use the syringe frequently over the whole plant, and encourage it to grow freely. It will, under such treatment, soon fill the pot with roots, and should then have a second shift. This will commonly be required about the beginning of June. Continue the same treatment, as to syringing, heat, and moisture, till July, and then remove it into the cooler stove, placing it near the glass, but shading it daily from the sun. In this house it will soon show flowers, and the increased light and air will give it those high, bright colours which render it so attractive. As soon as the bloom is over, cut the plant down to about half its height, leaving all the leaves on below the cut. Give very little water till fresh shoots are made, then give a moderate quantity all through the autumn, and in winter only just enough to keep it fresh and healthy. It is a fibrous-rooted plant, like the *Gesnera oblongata*, and therefore must never be allowed to get quite dry like the tuberous-rooted Gesnerworts.

When the potting season returns, shake the most of the earth off the ball, repot it, and subject the plants to the same treatment as the young ones described above. With proper care, the plants will then produce several of their magnificent heads on each.

Propagation: by Cuttings.—These are not produced very plentifully. When the plants are cut down, the top leaves may be used as cuttings. With a sharp knife cut the stem across just under the pair of leaves, then pass it through the stem between the two leaves, leaving the bud entire at the base. Insert these leaves without mutilation under a tall bell-glass, supporting the leaves with clean, newly-made deal sticks, so as not to touch the glass; let the pots be filled in the usual way with light rich compost, and a layer of pure white sand on the surface. Plunge the pots in a bed of warm tanner's bark, and keep the sand just moist, but by no means wet. Dry the glasses occasionally, and, as soon as growth is perceived, leave them off for an hour every morning. Roots will be perceived on the surface of the sand, and then the cuttings may be potted off, placing them under a hand-light till they have grown sufficiently to bear the full exposure and treatment, the same as for the older plants. The best cuttings, however, are those made from the young shoots which grow from the old plants that have been cut down. Exactly the same method to strike these must be adopted as that for leaf cuttings. T. APPLEBY.

MR. GLENNY ON FLORICULTURE IN 1851.

ANOTHER year of floriculture, as well as of the world, has passed away, and we may ask with real earnestness in what floriculture has advanced? What additions have been made to the number of its admirers? What improvements have been made in flowers? What increase has been discernable in the confidence of florists? To the first question, there may be some inclined to say the advance is considerable, because, in some localities, we grant, that florists' flowers have been better cultivated; but, in our travels, and they are by no means circumscribed, we see a greater number of places where they are abandoned, and especially by those who can afford to purchase but few new varieties, and who have found those few are, in nine cases out of ten, useless. In other places the lessened number of exhibitors have induced the withdrawal of the prizes, which increases the discouragement to the rest. Still, if the committees would give more prizes, and of less amount, for the leading favourites, there are plenty of growers who might be induced to cultivate them. Every year has done something towards lessening the number of *Auricula* growers, but to

show how easily a flower may be revived in a locality, the Diss Horticultural Society announced prizes for them, and we saw a very pretty competition, and a well-selected collection. It was there two or three years ago, that we saw first, a fine specimen of Cheetham's *Lancashire Hero*, which has completely set aside the old flower of that name, Metcalf's, and the same might be done anywhere, if a beginner could trust a dealer for the supply of a starting collection upon reasonable terms, such as would give him a chance in the race. However, as we should hardly know ourselves where to apply, we need not wonder at the difficulties experienced by young beginners.

To our second question, we fear the answer will be in the negative, because we know so many, we may say scores, who have died without successors, or have retired in disgust from the field where honours cannot be won, and who cannot value prizes obtained otherwise.

To the third question the answer is more pleasant. Flowers have received many valuable additions. The *Geranium* has advanced a little, and more especially the fancy kind; not but that we have a dozen new ones advertised for every one that is an improvement. The *Verbena* has had one or two pretty additions, but, like the *Geranium*, you have to sift them out of scores. The *Hollyhock* has considerably advanced, some very distinct, and, as compared with other varieties, good novelties have been produced; but in this flower good seed has been let out, and many persons are raising the same thing, as it were—that is to say, varieties so nearly like each other, that we have already the same colours and qualities under different names, each raiser feeling entitled to name his flower, and there not being so much difference between them as the self-same flower would exhibit in different gardens. In fact, a packet of seed will produce anybody an excellent collection. The *Tulip* progresses slowly; the greatest advance that has been made has been by Mr. Goldham, of Sydenham, who has some very beautiful novelties, which, however, will be some time before they can reach cultivators, for the *Tulip* cannot be propagated like other flowers, and we have known a variety to be grown for years before a second could be obtained. The *Ranunculus* is also moving a little; Mr. Tyso, of Wallingford, Mr. Airzee, of the Liverpool-road, Mr. Lightbody of Falkirk, Mr. Read, of Dunfirmline, Mr. Groom, of Clapham, and Mr. Lockhart, of Fulham, are the only raisers of any account whose productions are exhibited, and some of the novelties are very beautiful. The *Petunia* does not budge from its flabby character, and it is essentially a flower for the shade, for a quarter-of-an-hour's hot sun will wither it. The *Dahlia* ought to be advancing when we consider that a hundred novelties per annum are advertised for sale, all warranted by somebody, or described by the sellers as good show flowers; still ninety of the hundred may be set down as worse than many of the old and abandoned sorts; and there was not, last season, a single stand with six of the new flowers which could not have been improved by changing some of them for old and better kinds. The *Polyanthus* is not encouraged, and the prizes given for it in London have only produced a few starvelings that a boy of ten years old ought to be ashamed of, but which, of course, served the parties to claim the prizes with, as they were confined to members; that is, all others must show at greater expense than the prizes are worth. The last three that we think have been shown as novelties, and worth notice, were *Fire King*, *Lord Morpeth*, and the *Duke of Northumberland*. We heartily wish somebody capable of growing them would set an example near London, that is to say, within twenty miles, and save seed. But a passing lesson, or rather hint, may not be amiss. The only show flowers are those in which the anthers or thrum stand up above the pistil, those in which the pistil stands up prominently above the anthers are called pin-eyed. Now everybody saves from the thrum-eyed, or show varieties, and will not cultivate the others, so that every flower impregnates itself. Nor can bees, or any other insect, conveniently take from one to the other, so that, strange as it may seem, we rarely get anything new in character. If those who save seedlings would reverse this, and get together a few pin-eyed varieties of striking colour and character, and three or four of the best show flowers, and plant these away from all others, sowing the seed from the pin-eyed varieties only; or, if they are artificially

crossed, the pin-eyed ones with the thrum or pollen of the others, it is true they would not have one thrum-eyed one out of twenty, but they would have that one probably new and good. It is discouraging enough to grow two or three hundred seedlings, and have nineteen-twentieths pin-eyed and useless; but it is worth seven years failure to produce a real novelty in a flower so neglected or misunderstood. The *Pansy* progresses slowly, but still we have two or three added every season, without that fatal fault, the eye breaking into the border, for it ought to condemn a stand as much as a run petal in a *Pink*. We do not agree with many frivolous details which some who sell, and write about them, pretend to lay down. If the petals be thick and smooth-edged, flat and clear in the ground and colours, the markings well defined, we have all the different details to make the varieties, we care not how the leading properties are made up, so they be present, and the faults mentioned are absent. The *Pink* has made a start within the last two or three years, but we do not see the best novelties in the stand, because the better ones are perhaps as yet scarce. Florists who have but a limited sum to spare, are very generally allowing the first year's letting out to go by them, and buying the year after at a fifth of the price. The quality wanted in the *Pink* is the smooth instead of the serrated edge, and hundreds have been let out as rose-leaved, and proved very roughly serrated; we must, however, admit, that the best *Pink* in cultivation, if badly grown, or too late planted, will come rough. The *Carnation* and *Picotee* are both rapidly improving; every year adds novelty, and, in some cases, an approach nearer the standard, and there are, perhaps, more growers added than there are falling off. The Horticultural Society at Chiswick have established a mode of showing which wonderfully enhances their effect, and bids defiance to the too general practice of showing other people's flowers. A man may, and too many do, run about among cultivators, and pick up fine flowers, to help out his two-foot box of cut blooms; but when they have to show on their plants, there is an end of begging, borrowing, or stealing. *Roses* advance slowly; there are plenty of new ones, and numbers sent out under wrong names; still there are many engaged raising seedlings, and now and then a worthy addition is made; but some are strongly recommended that will not even open; others too much like what we have; others are imported and the name changed; and one very common trick is played off on foreign *Roses*, by translating the foreign name into English, and enthusiasts then get two alike. Mr. Willison, of Whitby, and Mr. Burgess, of Colchester, have, however, raised some perfectly novel and distinct, and some very remarkable. The *Fuchsia* is, unquestionably, moving the right way; and he who would put forth a novelty of which the sepals did not reflex, would be looked up to as taking an undue advantage of his customer, unless there was some novelty so distinct as to warrant it. We have plenty now of which the sepals gracefully reflex, and to show that our requirements in the properties of flowers, that they should reflex completely wrong-side-out, is not looked upon so unfavourably, one of Smith's this year actually reflexes as much as the *Martagon Lily*. Nor will any variety be tolerated, unless the colours of the corolla and the sepals are very distinct. Of course there are many sent out every year only to be thrown away, and some, too much like what we have already to be shown in the same collection. The *Antirrhinum*, as exhibited hitherto, is a weed; there is not one worth the room it would take in a garden. If this flower is to be a florist's flower, it must not be less brilliant than the old *Pictura*; but hundreds of the most indifferent, scratchy things, of which the markings cannot be seen two yards off, have been palmed upon those weak enough to grow them in collections, and the end of it is, they will be thrown away. A pure white, or bright yellow tube, with a richly contrasted lip, is the only kind that can be tolerated. The frightful collections seen at some of the shows would disgust anybody, even if he had once wished to grow them.

In fact, there is enough doing in many flowers to keep the science moving, if there were not the awful drawback of the vast number of bad ones to frighten people from buying. The *Chrysanthemum* has rapidly advanced in quality and culture. Mr. Salter, of the Versailles Nursery,

Hammersmith, has the raising of them in this country to himself, but he cannot save seed more than other people. He sends his best sorts to Italy and the south of France to be seeded; and we saw last year some hundreds, comprising three or four worth adding; and new sorts are also imported. The Stoke Newington Chrysanthemum Society originated the movement for encouraging the flower, and if fifty societies now spring up in imitation, to the original belongs the credit. There were stands of blooms at the last show perfectly double, and the flowers four, or five, and in one case, six inches in diameter.

And now we come to the last question, which, in a few words, is—has confidence increased? and what we have already shown answers in the negative. There is little or no confidence in the assurances of dealers, the certificates of societies, or the opinions of periodicals, for nearly all are under the influence of people whose temporary interests are opposed to the interest of the public.

CINERARIAS (*T. Ridsdale*).—*Purple Standard* and *Magnificent*, very pretty colours, but the petals do not fill out the circle; nevertheless, we have some of the finest in the country giving us stray blooms just now, not a bit like themselves, nor half so good in form as they will come in season, so that our opinion on these two, *as they are*, may be contrary to that we should give, if they were perfect, and at their proper season.

AMARYLLIS (*Rev. A.*).—Too much green in the flower to render it of any value. It is the prevailing fault among seedlings. With all our pains, we have frequently had to condemn fifteen out of twenty, some of them having scarcely a shade of colour. The darkest *Gloxinia* is very pretty, and somewhat new. There is more colour in the throat than any we have, and there is a tolerable collection. The flowers had suffered a little. They will both bloom better in the summer when the bulbs have had a rest.

THE VERBENA.

(Continued from page 216.)

TRAINING.—In our last number there were three modes of training mentioned—namely, the flat mode, to a wire trellis; the bush, or common method; and the pyramidal form. The last, as being the most novel and elegant, was pretty fully described; we will now briefly particularise the other two.

The flat mode of training is to a circular, table-like, wire trellis, about fifteen inches diameter, with three strong feet to thrust into the soil, and of sufficient length to elevate the trellis above the soil—about six inches for weak growers, and eight inches above the soil for stronger ones. It should be formed in circles, less and less towards the centre, with diverging rods to the outermost circles, to keep each circle in its place at equal distances from each other: three inches will be ample space between each circle. As soon as the plants are shifted for the last time into their blooming pots, is the time to fix the trellises to each plant. The trellises should have first a coat of lead-colour, and afterwards two coats of light green paint, to prevent them from rusting, and to give them a neat appearance. Any wire-worker, with the above instructions, will easily make them. When the plants are ready, or large enough, for training, apply the trellises by thrusting the three feet into the earth a sufficient depth to keep them firm in their places. Then, as the plants advance in growth, train the shoots equally over the trellis, stopping them to cause a sufficient number of branches to cover the whole trellis, nipping off all the flower trusses till within six or seven weeks of the day of exhibition, if that happens in May; but if in June or July, or still later, *the flowers will expand sufficiently in five weeks* (this rule applies to every mode of training). The aim must be to let every part of the trellis, or bush, or pyramid, be

fully furnished with bloom, so as scarcely to allow any foliage to be seen. The only care to be taken is to allow room for each truss to fully expand when in bloom without touching each other.

The other mode, which we have called the bush method, is the simplest of all, but is by no means so effective as either of the others, because, in a great measure, the stalks and foliage are so much more exposed. All that the trainer requires in this case are a few painted sticks, and the proper sized pots, with the necessary compost, and a frame to grow them in. When the plants are large enough, put in a sufficient number of sticks to form a neat round bush. Stop the shoots, to furnish the sticks with a shoot to each; and do not suffer them to become crowded, or the leaves would turn yellow in the centre, and drop off, which would give them a naked appearance when viewed sideways. With moderate attention, this easy method will furnish very handsome specimens. We remember some trained in this style last season at the Highbury Park exhibition; this had a very good effect, and obtained the second prize.

PLANTING AND POTTING: Planting.—At page 195, the reader will recollect, we described the soil and situation of the verbena bed, to be exclusively devoted to growing these flowers for exhibition in stands of six, twelve, or twenty-four trusses of blooms in each. Now, we would strongly advise the aspirant for honours never to attempt the contest with less than two plants of each kind, giving each plant as much care and attention as though he were dependent upon one; this would, generally speaking, be doubling his chance of success, and would very likely enable him to exhibit at more places than one. Not that he need confine himself to two plants if he has space for more, but there are now so many real good kinds, and they are multiplying every year, that a small grower can scarcely hope to procure, or find room for more than a pair.

The bed, or beds, to receive the plants, should be in good order about the last week in May, or the first week in June; the plants should, by a little extra pains in potting and stopping, be nice little bushes at the time. Choose a warm, cloudy day for the operation. We proposed, at the page above referred to, that the beds should be four feet wide (for the sake of neatness we would recommend enclosing them with slate or wood edgings, the former to be preferred, on account of its enduring qualities); then stretch a line 15 inches from the edging, and plant the first row of verbenas close to it, at 18 inches apart; when that row is complete shift the line to 15 inches from the other side of the bed, and put in the first plant so as to form a triangle with the two plants in the first planted row, and so proceed till the whole are planted; then give a gentle watering to settle the earth to the plants. As at that early season there is always danger from late spring frosts, it will be advisable, for a week or two, to shelter the plants from its effects; the most simple, but, at the same time, effectual protection, is to turn over them empty garden-pots, one to each plant.

T. APPELBY.

RADISH FORCING.

WE last week entered into some particulars relative to the forcing of potatoes for early spring use; we now address ourselves to another article, which, if of less general interest than the potato, is equally important in all cases where early variety is concerned—and a handful of young radishes is always an acceptable adjunct to the other good things sent to table; and all who aim at having this general favourite early in the season must at once bestir themselves, as no time is to be lost, and, in fact, those who strive to have such things at the earliest day, have already frames full of radishes

almost breaking into rough leaf. We have so often failed in obtaining what we call a useful, good crop, when sown before the second week in January, that we have ceased sowing any under glass before that time; not but that they will vegetate and grow at an earlier period, but the necessity then often exists of having the frame they grow in shut up, or nearly so, for days together, from the inclemency of the weather at that dull period; so that the young plant, urged into action by warmth communicated from below, is forced into that unnatural growth which results in the elongation of that portion of least value to the vegetable, "the neck."

The only way to check such a sickly state of growth, is to furnish the materials necessary to ensure good health. Now, we presume the amateur, or young gardener, to have already done so, in so far as they could, by applying the most genial growing heat they could devise, and a soil which they were persuaded "would grow anything," besides procuring seeds of the best variety of frame radish known. Well, what more can be done? Nothing; yet without "fresh air and sunshine" those efforts will not secure a crop; now these all-important elements cannot always be had. It may be true that we can admit a certain portion of the first of them, but the other is quite beyond our reach at the season we have above alluded to, and the consequence is that the absence of these essentials, and the presence of the others which we have some control over, "heat and moisture," produce a spurious growth, in which the enlargement in the case of radishes, as well as in that of many things, takes place in the part of least real use in the vegetable when sent to table. In fact, the long crooked neck they invariably get when confined for any length of time, so much defaces them, that their appearance (a point we ought never entirely to lose sight of even in vegetables) is such as to render them inadmissible at table. Now, the only cure for such a state of growth is abundance of fresh air, amounting to complete exposure, or nearly so. How is this to be obtained, when the thermometer indicates some 10° or 15° of frost? The newly-expanded leaf can hardly be expected to endure so sudden a depression of atmospheric heat, amounting perhaps to some 50°, which is no unusual difference between the external and internal air, and that depression must take place if full exposure be given to the embryo crop. But some will be saying, why not adopt a medium course, which is, admitting a certain quantity of fresh air to replace an equal amount driven out? Now this is all very good, and to almost everything but radishes this half-and-half way answers the purpose wanted; but somehow or other the "necks" still get long and ugly, that with all the care that can be taken, little short of complete exposure a considerable part of the day will prevent it. Now this forms one of the reasons why we refrained advising radishes to be sown with the first crop of frame potatoes we recommended to be planted last week, as the necessary warmth required to hasten that crop on, is such as to be fatal to the radish being anything but leaves and neck; we therefore advised the first crop of potatoes to be planted alone, but subsequent crops may all have a scattering of radish amongst them; and there is no reason why a few potatoes may not be planted in the frame we now propose to be devoted more especially to its more quickly maturing neighbour; at the same time, it must not be forgotten which one is the principal occupant, and which the lodger or successor.

The treatment in the two differs considerably; the short top the one ought to have, compared to the other, points out its being placed in as close contact with the glass as it can be without touching it, while the other, having a longer foliage, requires to be at a greater distance. Now, as we promised to give the preference to the radish, we will suppose a box-frame of the required

size placed over a well-prepared hotbed of sweetened stable-dung, or leaves, or—what is better—the two well mixed, in the manner our able coadjutors have so often explained. Well, we will suppose the box-frame to be set upon this prepared hotbed, our next duty will be to add some more leaves, or similar heating matter, to the inside, to raise it so far up that the top of the soil, which we will suppose to be six inches deep, will be not more than three or four inches from the glass; the object of this being to have the young crop as close to it as possible. Now, if it be determined to have potatoes in the same frame, do not, by any means, plant any of those partially forwarded ones, which we recommended to be done last week, as the foliage would compete with the radish before the latter was old enough to be drawn—rather plant tubers but little or not at all sprouted; these we suppose to be planted first, the proper depth and distance, and the ground made smooth, the radish seed may be sown, and slightly covered with a little fine earth. The kind mostly used of late years is *Wood's Early Frame*, which, when true, is good. After the young plants begin to grow, give air every day, which increase, so that by the time they begin to form the rough leaf, they may endure full exposure in all weathers, not decidedly frosty; by thus inuring them to the hardening influence of fresh air, they get a sturdiness of growth, which forms a strong contrast with their more coddled brethren, whose appearance more resembles those refuse cabbage-plants which, having stood in the seed-bed all winter, exhibit a serpentine length of stem. Now, as we have said the only antidote to that state of growth is "fresh air and sunshine," and as we all know these cannot be so much depended on in January as February, we have advised the amateur to defer sowing his early radishes before the beginning of the former month, and then his chances of success are more certain. We hardly need remind him that careful attention in the shape of covering up, &c., will also be required, and, by-and-by, a little judicious thinning will do no harm, if he sows thick. Another thing he must not omit to guard against—mice are very fond of radish-seed, and if they have access to the frame they will soon annihilate all chances of a crop.

Watering, &c., may be wanted by-and-by, but in the midst of frost and snow, which may possibly abound when these pages reach the reader, watering is restricted to those plants whose place of abode is in contact with, or very near to, hot-water pipes or flues. It will be some time ere our vegetable requires such assistance, but everything calculated to promote its welfare ought to be supplied, and one of the most essential of these is clean glass, in order that at those untoward times when it is denied the full exposure, it may derive as much benefit as possible from the light there is. A little radish-seed may also be sown on some warm border close under a south wall; a little protection at times will often ensure a crop of much finer radishes than any grown under glass, but of course they will be later.

SUNDRIES.—*Broccoli* that may have been standing in the ordinary quarters may be now laid down in such a manner as to resist a tolerably severe frost without being entirely taken up. Our mode is this:—With a spade take out a small spit of earth from the side of the stem you intend it to lean to, then, with the foot, tread it down in that direction, and the next spit of earth from the next plant will lie upon it—and so on until the whole is finished, when they will all be lying in a prostrate direction, and all one way. Now, the benefits of this plan are these—the direct influence of frost is more guarded against by the thick coating of leaves there exists between the crown of the plant and the exterior, while the plant does not derive that check it receives when taken wholly out of the ground, and removed to

another place, as the plan above detailed only fractures a part of those rooflets near the surface, without the others being in the least hurt by the operation. Now, we suppose some one will be asking what direction is the best to lay them; and much difference of opinion exists on that point, but, after trying them all, we have come to the conclusion that the *west* is the best. Some one will be saying *north*, but we have so often seen the plants struggle so much to regain their former position, when subjected to that unnatural persecution, and in so doing have erected their heads so as again to be liable to the injury they were prostrated to avoid, that we have determined on a west aspect being preferable. Take advantage of mild weather, and cut all that are ready; and all good heads nearly ready ought to be slightly protected, for which a handful of clean straw is a useful thing. Examine all tender crops, and see that no destruction takes place. *Dry wood-ashes*, or even *coal-ashes*, sprinkled amongst such crops as late-sown *Onionflowers*, *Lettuces*, young *Carrots*, &c., will materially prevent that "damping off," so common at this untoward season. See to *Sea-kale* that has been forced on the ground, and allow a sufficient covering over it to prevent frost ever reaching it for some time. Give a look to the *Broad Beans* we recommended to be sown thickly under a hand-glass, and if they be coming up, and show signs of damping-off, or getting what gardeners term "black in the eye," let some dry wood-ashes be dredged amongst them. Examine all *stores*, and expedite all work that can now be done. A much busier time is coming, which (with more or less of those drawbacks the weather and other circumstances always place in our way) will give us full employment, without our putting off any of those needful operations that might as well be done now.

J. ROBSON.

THINGS MIGHT BE BETTER.

By the Authoress of "*My Flowers*," &c.

We all know and feel that at the present time there is a heavy and general pressure upon all classes of the people. We cannot shut our eyes, or stifle our convictions; facts are stubborn things, and whether we think it arises from this or that cause, whether we agree or differ as to the reasons for it, still we all admit that so it is.

Nevertheless, I believe that things might be better than they are, with a great many people, even under the present disadvantages of our suffering country. It is not always "*the times*" that ruin men, or increase their misfortunes. There is a "cause" that too often withers their gourds, lying much deeper than the surface of events—buried very deep in their hearts; so deep that no eye but that of Him who inhabiteth eternity can see it and search it out. It is this "worm" that brings trouble, affliction, and ruin, upon every fair-seeming man. It is very, very often sin, and not *circumstances*, that causes our difficulties.

Thomas B— is a plumber and glazier, a very quick, intelligent man, but he has always had an off-hand, half-saucy manner, which people did not like, although there was nothing that any one could exactly take offence at. He was foreman to the widow of a man of the same business, married her daughter, and carried on the concern; but he never prospered. He was not a man given to drink, or to any apparent vice; but he never prospered.

At length he could get on no farther; and instead of honestly giving up all he had to his creditors, he got away privately, and took all he had left with him. In an obscure part of London, quite out of the way of his distant country acquaintance, Thomas B— set himself up again, but to no purpose. A blessing did not go with his efforts; what his habits were no one in the country knew; but he struggled on year after year with an increasing family, and his wife came to see her mother in a white gown and a necklace; and very little was thought about them.

Suddenly it was announced that Thomas B— was coming down to settle at N—, some distance from the

town he had formerly left so disreputably. Years had passed; some of his creditors were dead, others had given up their expectations, or were gone from the place; at any rate, B— came back into his old county, and no one interfered with him.

Had he been a strictly conscientious man he might have done very well. He soon got into work, and was employed by some of the first families in the neighbourhood. All seemed going on favourably; he set up a little cart, and had as much to do as he could possibly desire. In the course of three or four years work began to decline; the families for whom he had once painted employed him no more. He said they had all behaved very ill to him. They said, what was perfectly true, that his outside painting all washed off with the first rains; and that he and his sons were so off-hand and insolent, that they could not employ them any more. This happened in the case of five resident families, to our own knowledge, and no doubt in that of very many customers of less distinction, for all his employment fell away, and his family were reduced to very great destitution.

As a last resource, and that which is, alas! considered most likely to succeed, B— took to keep a beer-house. Those who took an interest in his wife and children spoke strongly against this step, as one of sin and danger both to body and soul; but he was in a fearful situation, between two evils, and he clave to the beer-house, as it promised to save him from immediate starvation.

Solomon has said, in the wisdom of inspiration—"He that maketh haste to be rich, shall not be innocent." We see it before our eyes, on every hand. Among the high and the low; among the educated and the ignorant; where "haste" is made, there dwells guilt, and punishment will surely follow. Thomas B— made "haste" to save his family from ruin, and set up a beer-house. The very next thing that we heard of him was, that he had sold up everything, and gone off to America. He had found even the beer-house fail—no blessing was in it, and it could not long prop him up. He and his family went away into a distant and strange land, without seeing their relations and oldest friends, or taking leave of them, even by letter. When people are not satisfied about their own conduct, it makes them shrink from those who know most of them; they can face new friends sometimes, when they cannot stand comfortably in the presence of old ones; and we suppose it was this that led Thomas B— and his wife to go away for ever, without seeing their oldest and most intimate friends.

On reaching America, they got on very well at first. B— and his sons obtained work, and found provisions cheap. But the last letter that came from Mrs. B— to a friend, announced a severe calamity. They had been but three or four months settled upon the strange soil to which they had fled for support, when a fire broke out in the wooden house they occupied. In *three-quarters-of-an-hour* it was levelled with the ground, and nothing was left but the family standing out in the street in their sleeping-dresses. Not one article, no, not even a chair was spared, and they found themselves in one short hour stripped of every possession, and standing upon foreign soil, half-naked, and wholly destitute! Surely "Wisdom crieth without: she uttereth her voice in the streets."

The kindness shown to the poor emigrants by their new acquaintance was deserving of high praise and thankfulness. They clothed and fed them, and gave them money and furniture to supply their wants; for even in judgment the Lord "remembereth mercy," and when he chastens, he healeth very tenderly. Still, a lesson has been loudly taught them. Let us "hear and understand." It is not this thing, nor that place, that can do us either good or harm. We fly from the fear of God; *this* it is that causes our downfall. Did not Jonah find it so? We fly in the face of God; *this* causes our ruin. Did not the Egyptians find it so? Let us look with a steady, unwavering confidence, in all our ways, to God. He has said, "Wait on the Lord, and keep His way, and He shall exalt thee to inherit the land." *This* is the *one grand* secret of prosperity, both in nations and in individuals; nothing else can uphold us. It is not the road we journey along that overthrows us. The Israelites travelled quietly and safely over the rocks and sands of the bed of the Red Sea. Let us remember it is *the Lord* who takes off our chariot wheels, and causes them to drive heavily; and when

we fancy times and circumstances are against us, let us look within, and see whether there is not "an accursed thing" in the midst of our hearts, before we set off, in search of treasure, to other lands.

ON KEEPING FOWLS FOR PLEASURE.

AMONG all my friends and acquaintance who keep fowls for family use, I believe there is not *one* from whom I do not hear frequent complaints of large consumption of corn, and small production of eggs—very great expence and very little return; and I think this absence of success mainly arises from the fowls not receiving the small amount of care and attention which is absolutely necessary to produce a good result. In many families, where a small live stock only is kept, the care of them devolves on all the members of the family alike, or—to word it more correctly, perhaps, I might as well say—on nobody. Now I wish to see this pleasant, healthful, and certainly not unladylike, branch of domestic economy attended to—carefully attended to—by the young ladies and little girls of families in the middle ranks of society. I am quite sure my pretty countrywomen (and that they are pretty is confessed by every foreigner who speaks upon the subject) would find it conducive to health, activity, and cheerfulness, to be thus led out into the fresh morning air for half-an-hour, or a little more, every tolerably fine day in the year, and with such attention the poultry of our land would not, I hope, so often receive, with justice, the ungrateful character of giving no return to those whose corn they eat.

Nor is this closely-watching nature in her living children less healthful to mind than body. Our young ladies have many less innocent and less improving, as well as less healthy, employments. Even the language of the hen-yard is interesting to the observant lover of nature. The vocabulary of a vigilant, affectionate, gallant cock, is as expressive as it is diversified. Who can possibly misunderstand the sharp, shrill cry, with which he recognises any unusual sight or sound, and warns his companions of the approach of danger? The low, affectionate cooing with which he greets his favourite hens, the melancholy cadence of his crow if separated from them, his friendly call to them at feeding-time, and his more energetic summons on finding some morsel particularly nice to offer them, are all as unmistakable as the plainest English. Nor are the hens behind their lords in conversational powers. When an egg is likely to be laid, a peculiar, uneasy, complaining sound gives warning; when it is produced, they sing a song of triumph; when they desire to sit, another note makes their wishes known; which note undergoes an evident change when the sitter first hears the chirrup of the chicken within the egg-shell, some little time before this sound is perceptible to less interested listeners; and when she leads her chickens forth there is no end to her talk and its varieties. Surely these creatures, so peculiar in their habits as to be often referred to in God's holy Word, are not beneath our notice, and the notice of the intelligent, simple-minded, home-loving young women of England?

I think it is shrewd old William Cobbett who remarks the improvement to the character of cottagers' children which is likely to arise from the care of animals, and the kindness and fondness which they are sure to feel towards their favourites; now I am of opinion that it is not *only* cottagers' children who may, in the care of poultry, receive useful lessons in patience, good-humour, and the love of order. If fowls are not noticed, and treated with patient kindness, they will never display the tractable tameness which so much diminishes the trouble of taking charge of them, especially when sitting and rearing chickens, and without order and cleanliness in all the arrangements, they will be neither happy nor healthy, handsome nor productive.

The time occupied need not be considerable, particularly when we come to consider, on the one hand, the benefit to health from this out-of-door exercise, and on the other, that the feeding may at any time be temporarily confided, always under superveillance, to any lad or young girl who is trustworthy. Half-an-hour before breakfast to let out the poultry and spread their food, a few minutes at noon to mix and feed, and half-an-hour towards evening to feed again, and see them counted and safe to roost; this is all the time

which need be occupied for nine months in the year. During the spring quarter the sitters and the mother-hens, with their young broods, require rather earlier attention, more frequent feeding, and a little more care.

Neither is it in many families a circumstance to be entirely overlooked, that this *may* be a cheap amusement. True, those who delight in choice and handsome creatures may indulge their fancy by rearing the showy Malay, the noble Spanish, the pretty Poland, the trim-built every-day-layer, or the magnificent Cochinchina; but the soft, tender downiness of the twittering little chicks, and the pleasure of watching their development, like the fresh, innocent beauty of young children, is not confined to any race, and common cocks and hens are not expensive.

In thus recommending that the care of the poultry should be confided to the younger members of families, I would not, of course, be understood to wish that those who from their stations in life are expected to be educated, refined, and delicate, should busy themselves in their hen-houses with shovel and broom, or expose themselves to the inclemency of cold, rainy weather; but what I wish to advocate is, that where the well-being and comfort of live creatures are at stake, they should become the charge of *one* member of the family—one both willing and able to attend to their comfort, to see to their feeding, to direct the necessary degree of cleanliness, and in all things to take care that they receive the *regular attention and kind treatment* so absolutely necessary to produce success, while at the same time this little attention to a branch of that home economy—home comfort—so dear to every Englishwoman, will assist in forming the character so justly appreciated in hundreds of thousands of the homes of our dear country.

ANSTER BONN.

BIRMINGHAM AND MIDLAND COUNTIES EXHIBITION.

LIST OF POULTRY PRIZES.

It must not be supposed that each price attached to a pen is the value at which it was estimated even by the owner. Many of the prizes were attached to *prevent* a sale, as one of the Rules of the Exhibition is, that some price must be affixed.

JUDGES.—The Rev. E. S. Dixon, Cingleford Hall, near Norwich; Mr. J. W. Nutt, York; Mr. Henry Hinxman, Durnford House, near Salisbury; Mr. John Baily, Mount Street, Grosvenor Square, London.

Class I.—SPANISH.—(*Cock and Three Hens*).—First Prize, 1*l.* 1*s.*, or large Silver Medal, Mr. John Henry Peck, Wigan; price 30*l.* Second Prize, 10*s.*, Mr. John Henry Peck, Wigan; 20*l.* Third Prize, 5*s.*, Mr. John W. Ward, Repton; 10*l.*

Class II.—SPANISH.—(*Pen of Six Chickens*).—First Prize, 15*s.*, or small Silver Medal, Mr. John Henry Peck, Wigan; 30*l.* Second Prize, 10*s.*, Mr. Edward Simons, Dale End, Birmingham; 7*l.* 7*s.*

Class III.—SPANISH.—(*Cock and One Hen*).—Prize, 10*s.*, Mr. John Henry Peck, Wigan; 12*l.* 10*s.*

Class IV.—DORRING.—(*Cock and Three Hens*).—First Prize, 1*l.* 1*s.*, and Extra Medal, Mr. George Lowe, Smithfield, Birmingham; 2*l.* 2*s.* Second Prize, 10*s.*, Mr. T. B. Wright, Great Barr, Staffordshire; 6*l.* 6*s.* Third Prize, 5*s.*, the Hon. and Rev. Stephen Willoughby Lawley, Eecrick Rectory, near York; 4*l.*

Class V.—DORRING.—(*Pen of Six Chickens*).—First Prize, 15*s.*, and Extra Medal, the Hon. and Rev. Stephen Willoughby Lawley, Eecrick Rectory, near York; 5*l.* Second Prize, 10*s.*, the Rev. John Hill, the Citadel, Hawkestone, Shrewsbury; 10*l.* Third Prize, Thomas Townley Parker, Esq., of Sutton Grange, near St. Helen's, Lancashire; 1*l.* 3*s.* Third Prize, Mr. Edward Mander, Park Farm, Beaudesert, Henley-in-Arden; 3*l.*, or 2*l.* per couple.

Class VI.—DORRING.—(*Cock and One Hen*).—Extra Prize, 10*s.*, Thomas Townley Parker, Esq., Sutton Grange, St. Helen's, Lancashire; 2*l.* 2*s.* Extra Prize, 10*s.*, Mr. George Lowe, Smithfield, Birmingham; 1*l.* 10*s.* Extra Prize, 10*s.*, Mr. George Lowe, Smithfield, Birmingham; 1*l.* 1*s.*

Class VII.—WHITE DORRING.—(*Cock and Three Hens*).—First Prize, 1*l.* 1*s.*, or large Silver Medal, Mr. Joseph Jennens, Moseley; 8*l.* 5*s.* Second Prize, 10*s.*, the Right Hon. the Earl Beauchamp, Madresfield Court, Worcestershire; 10*l.* Third Prize, 5*s.*, the Rev. George Hutton, Gate Burton, near Gainsborough; 10*s.* 6*d.* per couple.

Class VIII.—WHITE DORRING.—(*Pen of Six Chickens*).—First Prize, 15*s.*, or small Silver Medal, Mr. Nathaniel Antill, Portsea, Hants; 1*l.* 10*s.*

Class IX.—WHITE DORRING.—(*Cock and One Hen*).—No prize awarded.

Class X.—COCHIN CHINA.—(*Cock and Three Hens*).—First Prize, 1*l.* 1*s.*, and Extra Medal, Mr. George James Andrews, Dorchester; 30*l.* First Prize, 1*l.* 1*s.*, and Extra Medal, Mr. Thomas Sturgeon, Manor House, Greys, Essex; 60*l.* Second Prize, 10*s.*, Mr. Frederick Charles Steggall, Weymouth; 21*l.* Extra Third Prize, Mr. George James Andrews, Dorchester; 30*l.*

Class XI.—COCHIN CHINA.—(*Pen of Six Chickens*).—First Prize, 15*s.*,

and Extra Medal, Mr. Thomas Sturgeon, Manor House, Greys, Essex; 60*l*. First Prize, 15*s*., or small Silver Medal, for White Cochins, Mr. Edmund Herbert, Powick, Worcestershire; 5*l*. 5*s*. each. Second Prize, 10*s*., William Cust Gwynne, Esq., M.D., Sandbach, Cheshire; 12*l*. Second Prize, 10*s*., for White Cochins, Mr. Edmund Herbert, Powick, Worcestershire; 5*l*. 5*s*. each. Third Prize, Mr. Thomas Sturgeon, Manor House, Greys, Essex; 60*l*. Extra First Prize, 15*s*., or small Silver Medal, Mr. Thomas Sturgeon, Manor House, Greys, Essex; 60*l*. Extra Second Prize, 10*s*., Mr. Thomas Sturgeon, Manor House, Greys, Essex; 60*l*. Extra Second Prize, Mr. George James Andrews, Dorchester; 30*l*. Extra Third Prize, Mr. Charles Frederick Steggall, Weymouth; 63*l*. Extra Third Prize, William Cust Gwynne, Esq., M.D., Sandbach, Cheshire; 8*l*.

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Class XIII.—MALAY.—(*Cock and Three Hens*).—Third Prize, 5*s*., Mr. Edward Armfield, Edgbaston; 3*l*. 3*s*. No first and second prizes awarded.

Class XIV.—MALAY.—(*Pen of Six Chickens*).—First Prize, 15*s*., or small Silver Medal, Mr. James Oldham, Nether Whitacre; 6*l*. 6*s*. Second Prize, 10*s*., Mr. James Oldham, Nether Whitacre; 5*l*. 5*s*.

Class XV.—MALAY.—(*Cock and One Hen*).—Second Prize, 5*s*., Mr. Edward Armfield, Edgbaston; 1*l*. 1*s*.

Class XVI.—GAME FOWL.—(*Cock and Three Hens*).—First Prize, 1*l*. 1*s*., and Extra Medal, Mr. Edward H. France, Ham Hill, near Worcester; 5*l*. Second Prize, 10*s*., Mr. Benjamin Williams, Losells, Handsworth; 3*l*. (Black-breasted Red). Third Prize, 5*s*., Mr. James Thomas Wilson, Redditch; 10*l*. (Worcestershire Black). Extra First Prize, 1*l*. 1*s*., or large Silver Medal, Messrs. William and James H. Parkes, Campbell, Birmingham; 3*l*. 3*s*. (Grey). Extra First Prize, 1*l*. 1*s*., or large Silver Medal, Mr. Edwin L. Bullock, Hawthorn House, Handsworth; 4*l*. 4*s*. (Worcestershire Pile). Extra Second Prize, 10*s*., Mr. Isaac Avery, King's Norton, Worcestershire; 10*l*. (Birchen Grey). Extra Third Prize, 5*s*., Mr. Thomas Smith, Chespaide, Birmingham; 2*l*. 10*s*.

Class XVII.—GAME FOWL.—(*Pen of Six Chickens*).—First Prize, 15*s*., or small Silver Medal, Mr. Edward Glover, Olton Green, Solihull; 3*l*. (Black-breasted Red). Second Prize, 10*s*., Mr. William Williams, Ox Hill, Handsworth; 6*l*. Third Prize, 5*s*., Mr. Edward Barber, Monkspath; 8*l*. 8*s*.

(To be continued.)

TO CORRESPONDENTS.

COCHIN-CHINA FOWLS.—A correspondent, *Ornis*, says, "The article on poultry in your number of the 18th of December will have attracted the notice of all those who, like myself, think that the rearing of poultry may be converted into a large source of profit to the farmer. And we South Essex men are not a little proud to find our district stand forth so prominently in the Midland Counties Show; indeed, considering the care and judgment which Mr. Sturgeon has displayed in bringing the Cochin-China to perfection, one cannot be surprised at his success. The cottage-like buildings in which the poultry are housed, and the general attention exercised, will surprise all who will visit Orays, and take advantage of the courtesy with which all these arrangements are shown. My object, however, is not the laudation of any individual, but to point out what most of us consider as a misapprehension on the part of the Rev. E. S. Dixon, with whose report of the Midland Counties Meeting you conclude your remarks on poultry. Mr. Dixon, speaking of the Cochin-China, observes, 'that it is a mistake to suppose, in forming a judgment on the merits of this breed, that mere weight is, or ought to be, the main qualification.' And on that score he gives the preference to a pen of much lighter birds. Now it is generally thought that weight is the main qualification, added, of course, to delicacy of flavour; a combination which renders the Cochin-China breed at once peculiar and profitable. I have no wish to raise any vexed question, but it seems to me desirable that the Rev. E. S. Dixon's assertion should not pass unnoticed, especially when it concerns a point which is a distinguishing feature in the breed alluded to."—We are glad to find a practical farmer like *Ornis* agree with us in our estimate of poultry as profitable farming stock, and we have no doubt that when Mr. Dixon reads the above he will speedily inform us that his judgment is somewhat in unison with ours. We think, with *Ornis*, that weight is the main qualification of the Cochin-China fowls, but Mr. Dixon says very accurately it must not be "mere weight." It must be weight of serviceable flesh, and not of bone, a compact fleshy Cochin fowl is more meritorious than one much heavier, of which the weight arises from an over-growth of bone and giblets.

VINES IN POTS (*Leytoniensis*).—We had delayed a full answer to your query, thinking that a paper on the subject would be the best reply. A second glance at your inquiries, however, shows that the order of them would not be quite compatible with the article. We take your queries *seriatim*. Are vines in pots troublesome, &c. &c.? Yes; much attention is requisite. Do they repay the trouble? Not as a commercial speculation, we should say. What weight of grapes to each pot? This depends on size and head room; say three to six pounds. Vines in pots do not bear so well continued year after year, as by a renewal system. What sorts? The *Black Hambro*, the *Muscadine*, *Frontignans*, and *Muscat of Alexandria*; the first the most certain. What number of pots to undertake? That depends on house room. We should say that at least two square feet of roof may be allowed to each pot vine, for it is a roof affair after all. Your cold pits would do to rear young stock in. What size ought the pots to be? We should use about 12 to 14-inch pots, with plenty of holes in the bottom. If you have pits of fermenting material, they will enjoy being plunged, and will root through the pot holes. Whether your labour is adequate, depends upon the other calls on the time of the gardeners; although, if the houses are occupied with pot vines alone, we are not assured that they will consume more labour than miscellaneous affairs. Pot culture of vines, for profit, we consider a retro-

grade course. As a hobby, and as occupying spare spaces, they are very commendable, and, indeed, sometimes very useful; but it is a notorious fact that but few excel in their culture.

UNFRUITFUL PLUMS (S. C.).—Your case is by no means uncommon. Some standard plums and the summer damson are very uncertain bearers, or rather bad setters. The plum blossom is very delicate. Could you not cover them with bunting or canvass, putting it over them in the end of February, to retard the blossom? You may prune them carefully on the top, thinning out interior shoots, and shortening back strong young wood, and by all means root-prune. Whilst root-pruning, for which see back numbers, take occasion to weed out all suckers.

COCK GUINNA FOWLS.—In answer to *W. Mason*, "A Clergyman" replies:—"Attentive observation of the flock of Guinea fowls is the only way to arrive at a knowledge of the number of cock birds it contains. They can generally be detected at feeding time, when every now and then they seem actuated by an irresistible impulse to make an assault upon their companions, especially the other kinds of poultry who are unfortunate enough to have to feed with them; they have also a peculiar strut when walking upon the lawn, frequently rising upon their toes, and curling their necks in a most conceited way; they never join in the chorus of 'come back,' that sound issuing exclusively from the hens. I can always, by these rules, detect the cocks when they have arrived at mature age. There is no possibility of distinguishing them when young. I may also add, that the cocks have generally larger wattles."

VERBENA CUTTINGS (E. C.).—Shanking is the name of the disease which affects your young Verbenas, when they turn brown below. Sulphur and soot have no effect on it. If the bottom is alive, the best way is to cut them down quite close, and stir the surface of the soil, and the lowest eyes will push again, but if there are no bottom eyes, there is no known remedy except making cuttings of the fresh tops.

HYACINTHS (*Ibid*).—These grown in moss need not be covered all over with it; neither should the moss be kept wet, but only a little damp on the surface, until the leaves are three or four inches long, and the roots well spread in the moss; then they require regular watering. They often mould a little at first, but that does no harm if the bulbs are sound; we would wipe off the mould gently. Your rose, very large, flat and double, dark in the middle, paler outside, and buds like a horsechestnut, is *Microphylla*. It requires a slight protection in hard weather.

CAPE GOOSEBERRY (*Ibid*).—It does not stand the frost at all, at least but very little of it. We have used the berries in the dessert, and also preserved, but they are not worth much. But if you can get us a more favourable account of it, we shall be obliged.

YOUNG QUEEN BEES.—A *Country Curate* says:—"In reply to the flattering note of your correspondent, 'Another Country Curate,' I have to state, that in my frequent mention of the advantage of maintaining a stock of young queens, I have, in agreement with the opinion of old apianians, rather assumed than proved the fact, that their fertility is great, in proportion to their youth. But let us see on what grounds. The laws which regulate the economy of the insect world, with respect to the development of the animal powers, viz., that the insect grows and develops itself only in the grub, or larva state, whereas it issues from the chrysalis perfect in every part (*reproductive*, or otherwise), are well known. This law is, with few exceptions, absolute. Every insect as it emerges from the chrysalis state is, for all the ends of its being, a *perfect insect*, and fulfils its destiny at once, without improvement, or alteration, save that which proceeds and accompanies decay. I mean that its powers are not capable of improvement, though they are liable to decline; this is most noticeable in the case of the silkworm. Reasoning, therefore, from these premises, we must at once assent to the conclusion, that a young queen is at least (and this has been abundantly proved), as vigorous in her first or second, as in her third year, and also that as her powers are undoubtedly liable to decay, at some time or other, they may decay gradually from the first. Yet, I am bound to say that I cannot, from my own experience, bring forward any certain evidence in proof that the queen bee is much (if at all) more fertile in her first, than in the two next succeeding years. I believe she is more fertile, but I repeat, I am without evidence to prove it. I have, however, I think, had evidence indubitable, that in her fourth year, she is considerably less fertile than in either of the previous years. It will, therefore, I think, be conceded, that the advice is reasonable which recommends the maintenance of a youthful race of queen bees, on the ground of their being generally more likely to be fertile than older ones. I have certainly found young queens exceedingly fertile the very season of their birth; indeed, I have now several in my apiary, reared last summer (both artificially, and in the ordinary way of nature), who preside each over a most numerous family; in fact, these are my most hopeful stocks. Some judgment, however, is required in managing an apiary on the data furnished by this principle; by way of guide, therefore, to the inexperienced, I shall here quote a passage from 'The English Bee-keeper' (page 209), which is much to the point:—"As a rule (I there say), where it can be done judiciously, a succession of young queens, not exceeding two years old, should be kept up by a biennial removal of the old ones. But it must be borne in mind, that all queens are not equally prolific mothers; therefore, in the event of a queen's having proved herself an extraordinarily good breeder one year, it will be for the apianian to consider whether he may not become a loser by exchanging her for a younger queen. I, myself, should by all means permit her to reign a third summer, and it may be even a fourth; but this very rarely occurs. The bee-master cannot greatly err, therefore, who exchanges the queens of his strong stocks triennially, &c." As to the "common notion" with those who burn their bees, "that stocks are best in their second year," it can only be explained, if true (which, doubtless, it sometimes is), in this, viz., that where the hives in common use are too large to be filled the first season, of course they will contain a great deal more honey at the close of the season next following. In all other cases, where matters go on as usual, the fact directly disproves the "notion," for it will be found invariably, that good swarms put into fair-sized hives, will, far more abundantly, repay the plunder of their stores the first, than in any succeeding year; because at least of the superior quality of the honey, if not of its greater quantity.

CINERARIAS AND CALCEOLARIAS (A. B.).—Mr. Appleby, in due time, will write upon growing Cinerarias and Calceolarias for exhibition.

FROSTED PLANTS (J. H.).—Mr. Fish's communication to-day is really a full answer to your query. It is almost superfluous to add that your gardener should not have heated the stove in the morning when he found the plants frosted; and he rendered matters worse by syringing them at the same time. Shade and dryness, to secure a gradual thawing, should have been the treatment adopted. If water was applied it should have been as little above the freezing point as possible, and the house should have been kept equally cold.

HEATING A SMALL PIT.—D. A. P. writes as follows:—"I should feel obliged if you would enquire of your correspondent W. X. W. (*Vide* COTTAGE GARDENER, vol. iv., p. 56) how much charcoal his stove holds, and how long, when once filled, it will burn? Also, at what rate per bushel he can purchase charcoal? In this locality it fetches 1s. 3d. per bushel, and if, as I fancy, it would take nearly half-a-bushel to fill the stove once, I cannot understand how this plan of heating can be called economical. I heat a small greenhouse with coke which costs 2d. a bushel, and, for the purpose of excluding frost, I find that quantity sufficient for a week. I much wish to find out some plan for heating a small two-light frame in a more handy way for an amateur than with dung, and feel greatly inclined to try your correspondent's stove, but the expense seems to me an insuperable objection." Will W. X. W. oblige us by answering this?

TEMPERATURE OF WINE CELLAR (Syonic).—A temperature uniformly 59° of Fahrenheit's Thermometer is best for a wine cellar. *Essence of Lemon* is too stimulating for invalid stomachs. Brandy, rum, and gin, may be of equal strength; how weak any one of them is depends upon the conscience of the retailer.

ICE INSIDE GREENHOUSE GLASS (L. C.).—It is quite possible, and, indeed, certain, for ice so to form, if the outside temperature is much below freezing, and if the thermometer in the warmest part stands only at 39°. Even if kept a few degrees higher, the moisture in the air would partially freeze against the inside of the glass. There is no need for a great heat in the flue to keep the thermometer from falling below 43°, and then your plants will be quite safe though ice does occur

on the glass. If your plants were frosted, the inside thermometer in the night must have been below 32°.

GREENHOUSE OF BOARDS (W. F. E.).—The sides may be so constructed and tarred, as you propose. See the full directions for such a structure in our 120th number, page 230. An answer about vine grafting next week.

WHITE TURKIES.—*Anster Bonn*, in reply to the *Rev. R. E. B.*, says, I believe the best plan for commencing to keep white turkeys would be to buy young ones fully fledged; for, until they are so, they are very delicate. After this they do very well with common feeding and treatment. I have had a *Cochin-China* chicken begin to lay at fourteen weeks, but I am very glad when I can put them off until they are seven months old, as I consider the time may be much better employed.

HENHOUSE (Anonyma).—A moveable henhouse would be objectionable for many reasons. The trouble of moving would be far more than that of cleaning. There is nothing in the fear about the exhalations.

SALVIA NEMOROSA.—*Apiphilus* wishes to know where he can obtain seeds of this plant, so agreeable to bees.

NAMES OF PLANTS (Mrs. Delves).—Your specimen is too small for us to be certain what is the name of your plant. We believe it to be a species of *Rivina*. Can you send us a better specimen with leaves? (*M. S.*)—Your plant is the *Lycocleria formosa*, an interesting-looking plant in the plantation, when in flower, from the contrast of its deep green leaves and stems with the purple colour of its large bractees and berries. It is a free grower, and free bloomer, and quite hardy, flourishes in any soil or situation. With us it sows itself over the whole garden, as the commonest weed; therefore, we should recommend you to sow towards the end of February, or early in March, either in a pan or pot in the open air, and do not nurse it up in any heated structure.

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WEEKLY CALENDAR.

M D	W D	JANUARY 15—21, 1852.	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
15	Th		29.449—29.111	51—28	S.	—	2 a. 8	17 a. 4	1 42	24	9 32	15
16	F	Dandelion flowers.	29.744—29.474	50—40	S.	20	1	18	3 0	25	9 58	16
17	S	Wren sings.	29.641—29.571	51—27	S.W.	48	1	20	4 17	26	10 14	17
18	SUN	SUNDAY AFTER EPIPHANY. Prisca.	30.081—29.927	48—28	S.W.	—	0	21	5 29	27	10 34	18
19	M		30.067—29.940	49—35	S.	—	VII	23	6 34	28	10 53	19
20	Tu	Fabian.	29.882—29.422	50—40	S.	48	58	25	7 29	29	11 11	20
21	W	Sun's declination, 20° 1' s.	29.527—29.465	50—30	S.W.	69	57	27	sets.	☺	11 29	21

In answer to a correspondent signing himself *Leominster*, we know of no work "devoted to a consideration of the gardening of the ancients;" and we make our reply in this place because it serves to introduce our notice of *LUCIUS JUNIUS MODERATUS COLUMELLA*, whose writings on Roman horticulture are preserved, and give us a high opinion of the skill to which they had attained in the art. He lived under the sway of the Emperor Claudius, during the earliest years of the first century. He was a native of Cadix, and thence is surnamed occasionally *Gaditanus*, and is described as having most diligently cultivated the soil on the banks of the Guadalquivir, a river of Spain emptying itself into the sea, but a few miles from his native place. One who had thoroughly studied his works observes that he several times makes mention of his uncle, *Marcus Columella*, as a person of great note and distinction, and as having an estate in the province of *Bætica*; probably he was born of Roman parents, for no doubt many Romans settled in that delightful country.

It does not appear at what time he removed to Rome, but there is some reason to think that it was in the reign of Tiberius, if not before; for he says in his third book that he had possessed lands many years in the territory of *Ardea*, and that he wrote his eleventh book at the desire of one *Claudius Augustalis*, a young man of some learning and distinction. That this *Claudius* is the same who was afterwards emperor, cannot indeed be affirmed for certain, yet it is not altogether improbable, for *Tacitus* tells us that *Tiberius* made him a fellow of the College of Priests, which he had instituted in honour of *Augustus*; and we know of no reason why he may not be the person mentioned by our author, who, probably, would neither have been influenced by him to write the said book, nor would he have given him so honourable a character, if he had not been of superior rank; and the character given is, according to *Suetonius*, applicable to *Claudius* in his younger years. He speaks of *Cornelius Celsus* and *Julius Atticus* as men of his own time, and it is certain the first flourished in the reign of *Tiberius*. He several times makes mention of *Julius Græcinus*, without any intimation of the hard fate of that good man, who was put to death by the Emperor *Caligula*, so that there is some reason to think that he was living when *Columella* wrote. If what is above said be true, then he wrote a part of his works in the reigns of *Tiberius* and *Caligula*.

In his third book he mentions *Annæus Seneca* as then living, and commends him for his great learning, but says nothing of his being advanced to the dignity of a senator, nor of his being entrusted by *Claudius* with the education of *Nero*, his adopted son and successor, which, probably, he would have taken some notice of if *Seneca* had been then promoted to these dignities; so that it is reasonable to think that he wrote this book, at least, some time before this happened—probably in the first years of the reign of *Claudius*, who in the seventh or eighth year thereof adopted *Nero*, and committed him to the care of *Seneca*, the said *Nero* being then eleven or twelve years of age. *Claudius* dying five or six years after, *Nero* succeeded, being only seventeen years old, according to *Suetonius*, and, as *Eusebius* says, in the year of our Lord, 53, at which time, it is probable, *Columella* had finished his whole work. There is only one thing which may give reason to think that it was some time after this before he finished it—namely, in his first book, cap. 7, he makes mention of *L. Volusius*, a very old rich man, of consular dignity; and his words seem to intimate that he was then dead. But *Tacitus* says that this *Volusius* died aged 97, in the 89th year of Rome, which was the 56th year of our Lord. If *Columella's* words must be so understood as to signify that *Volusius* was dead when he spoke of him, then we must conclude that it was some time after this before he published his work; but it was in *Seneca's* life-time, who was put to death by *Nero*, in the year 65. Notwithstanding all that has been said, the precise time, either of his writing or publishing it, cannot be determined. We doubt not he employed many years about it, and wrote some parts of it in all the reigns above-mentioned; and that he did not write all the books in the order they are now placed, several of them having no dependence on the foregoing; and that a great part of the first book, being a preface to the whole, was written last of all. However, it is evident enough that he wrote in Rome, or in some part of *Latium*, by his manner of expression sometimes in mentioning these places.

This Treatise of Husbandry consists of twelve books, in which he has touched upon such a vast variety of things, and explained all the different

branches of the art with such perspicuity, and delivered his precepts with so great judgment, as show him to have been perfectly master of his subject; and, throughout the whole, there are so many evidences of his having been so well acquainted with all the different parts of learning; and that he had so carefully examined all the authors, both Greek and Latin, that had treated of the same subject before his own time, and that to his theory he had added his own experience, as give us abundant reason to think that no man could ever have been better qualified to undertake such a work, having, to all his other opportunities of improvement in knowledge and experience, added that of travelling into foreign countries; for he tells us that he had been in Syria and Cilicia, and it is not probable that a man of his character would pass by Greece without visiting it. All these twelve books he inscribes to one *Publius Silvinus*, of whom he gives us no particular account, only insinuates that at his desire and request he had undertaken and carried on the said work. We may reasonably think that this *Silvinus* was a person of some considerable note and distinction, by the respectful manner in which he always addresses himself to him; and, as *Columella* mentions some lands that they both had amongst the *Cerastini*, a people in Spain, it is not improbable that he also was a Spaniard.

Besides these twelve books, inscribed to *Silvinus*, there is a book concerning trees wherein there is no mention made of him. This single book appears to be a part of a former Essay of *Columella's* upon Husbandry, for in the very beginning there is mention made of a preceding book concerning the culture of lands. What seems most probable is, that *Columella* having at first written more briefly upon this subject, it was so well received, that at the pressing desire of his friends he enlarged it, and put it into a new form, as we have it now, in twelve books, which being a complete system of husbandry, his first essay came to be less used, as being less perfect, and afterwards a part of it was lost; this some transcribers, and the first editors, not having considered, placed it as the third book of his husbandry, which confounded the order of the whole, as has been more fully taken notice of in the note annexed to this single book.

Columella wrote upon several other subjects besides husbandry. He tells us, lib. xi. cap. 1, that he had written against astrologers, not those who only observed the motions of the heavenly bodies, and made conjectures of what probably might, or commonly did, happen before, or after, or at the rising and setting of certain stars, but such as he calls *Chaldeans*, who vainly pretended to foretell with certainty what alterations would happen in the air and weather upon such and such days, &c. He also had formed a design to write of the lustrations and sacrifices in use among the ancients, for preserving the fruits of the ground, &c. But whether he ever finished this work is very uncertain; and we do not find that any other thing besides his husbandry has been preserved to our days. He was a great admirer of *Virgil*, and cites him upon many occasions, but seldom without some epithet or other expressive of the great veneration and regard he had for him, and of the deference he paid to his judgment. He seems not only to have been a great lover of poetry, but also no mean poet himself, of which he has given sufficient evidence in his tenth book on Gardening, which he says he wrote in verse not only to gratify *Silvinus*, but also in obedience to *Virgil*, who recommended that subject to the care of some future poet; and, considering the nature and difficulty thereof, he has succeeded very well. He has not, indeed, greatly embellished his poem with many new poetical conceits of his own, but he has introduced into it several old fabulous stories, and applied them dexterously enough to his own purpose; but, as his business was rather to instruct than to amuse, it is rather an advantage than a blemish to it that it consists more of brief descriptions, and of plain directions and precepts, than of fictions—his expression, for the most part, being both poetical, natural, and agreeable enough.

We find our subject so unexhausted, that we must continue our remarks in our next number.

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 41.3° and 30.8° respectively. The greatest heat, 60°, occurred on the 19th in 1828; and the lowest cold, 4.5° below zero, on the 19th in 1839. During the period 168 days were fine, and on 67 rain fell.

So anxious are we to impress upon our readers the profit, as well as pleasure, derivable from poultry-keeping, and to furnish every relative information, that we shall give pre-eminence to-day to a report of the first meeting of *The Cornwall Society's First Exhibition of Ornamental and Domestic Poultry*, which was held at *Penzance*, December 30th, 1851, and which, but for an accidental delay, would have appeared in our last number.

The English public appear suddenly to have made the

pleasing discovery, that they really are, and have long been, in possession of a set of objects, of which the interest and value have hitherto been unknown, but are now beginning to be acknowledged and appreciated. The present feeling amongst no inconsiderable portion of our population may be compared to those of the Cornish miner, who long regarded his yellow ore as mere *poder* or *dust*, which came in and spoilt the tin! but which he now knows to be rich and valuable; or to those of the parent, whose child, once thought talentless, and good for little, turns out to be the eminent member of the family.

"Cocks and hens! Yes; all very well in their way;"

used to say the farmer. "They'll amuse the Missus, and keep the children from a worse loss of time; but don't let them eat too much corn, nor pull too hard at my barley-stacks."

But, at the outset, a word may be addressed to those who, occupied with business, agriculture, or perhaps politics, look slightly on these less important objects. It is acknowledged that domestic pleasures and domestic pursuits are characteristic of well-regulated English families. What tends to refine and elevate homely matters cannot be quite contemptible. Naturalists are allowed, without reproach, to chronicle the motions, and study the habits of the merest stray bird of passage which shall have arrived from North America yesterday, and be off to South Africa to-morrow. Why may we not take an equal interest in birds that are permanently resident with us, which cross our path whenever we walk abroad, and which mostly even pass the night under the same roof, either with ourselves, or some of our other dependent animals. It has been well observed by one of the most eminent naturalists of the day, that his favourite science is a good thing to teach children, for one reason among others, that it trains them to observe closely, and to discriminate habitually, between nice points of difference. The same remark particularly applies to the gentle gradations to be found amongst domestic birds, in comparison with those of their wild relations. "You," it may be said, "are well employed, as heads of families, in the weighty concerns which all but absorb you. You have (at least it may be hoped so) several merry faces clustered around you, for whose leisure hours you would wish to provide innocent occupation and amusement. Or you have an aged parent, a sorrowing friend, a weakly child, whom you would still like to see interested and engaged, even though that on which they employed themselves might not be of paramount concern. It may be predicted, that you will find such societies as have just been inaugurated at Penzance turn out the means of lightening the load of many an irremediable sorrow, and of softening the stern advances of many an incurable disease. As years pass on the case may happen even to yourself."

It has not yet been satisfactorily explained, why, till now, poultry shows have been confined to the North and West of England for many years past. There they are old-established anniversaries. The great Birmingham meeting itself, though new, is no novelty in its own neighbourhood, but merely a concentration and a development, through the agency of railways, of the smaller local shows that were held in the old coaching days. The Yorkshire Society seems likely to do for that extensive district, what Birmingham has done for the Midland Counties, and it is probable that the older meetings will be swallowed up and absorbed by their more robust younger brethren. But, hitherto, the North has had it all her own way. The poultry shows at the Regent's Park Gardens cannot be considered as other than failures; one reason may be that they were held in July, or August, at which time the birds were either moulting, or better employed than in attending public meetings. At last the South is to perform its share—Penzance has begun; Lewes and Salisbury are to follow. In the great Eastern poultry-rearing counties, in Norfolk, Suffolk, Cambridgeshire, Essex, and Kent, poultry shows have not yet been dreamt of. East Anglia is at present content to be utilitarian, leaving the rest of the world to pursue the ornamental.

The opening of this first exhibition of the Cornwall Society was made still more exciting by the zest of uncertainty as to some of its materials. Birmingham, and the Yorkshire towns in which poultry shows are held, are each the centre of a network of railways, which may be depended on, as right as the mail, for the conveyance of contributions. But the Land's End, though the end of turnpike-roads, is not the end of all things. Beyond it lie, in dreamy cloud-like shapes, the Scilly Islands, which, as they happen to have plenty of tin, need want for little purchasable that earth can supply. The gentleman who is at present, under a Crown Lease, Lord Proprietor of these, Augustus Smith, Esq., of Trescow Abbey, whom Murray's excellent Handbook of Devon and Cornwall describes as "a most kind and benevolent ruler, continually studying the welfare of his subjects;" this lord of the lonely isles had entered several

very desirable lots (113—120) to cross the sea, weather permitting, and as the hour drew near, it became a matter of interest to know whether they could and would arrive. Besides the cultivation of ornamental poultry on the Island, which is his residence, Mr. Smith has good opportunities of indulging his zoological tastes, which he does not neglect. One uncultivated Island, St. Helen's, is stocked with deer; another, Tean, with white Angola rabbits. The Scilly specimens did appear in good time. Excellent White Dorkings, capital Muscovy, Rouen, and Call Ducks, besides Egyptian Geese, displayed their graces in the Corn Hall of Penzance.

As an opening Show, the collection may be described as exceedingly creditable to the town. Of course there was an inequality, and a deficiency in some of the classes. It is not till after a first show that either the weak or the strong points possessed by any retired neighbourhood can be exactly ascertained. Thus, the White Dorkings were of high merit, while the Speckled Dorkings were less commendable. All Dorkings, everywhere, ought to be first-rate, and well shown. Cornwall is strongly recommended to make trial of the Grey, or Cuckoo Dorkings; in these birds, either the rose, or the flat single comb is admissible; the writer of this most fancies the flat combs. Of either it may be said, to quote Mr. Baily's judicious report of the Birmingham Show, in December 27th's *Agricultural Gazette*—"It is hard to look on a Dorking pullet, and not to think, while weighing her good qualities (and the century-and-half she has stood her ground against all new comers), that she realises in herself the valuable properties the Vicar of Wakefield's wife sought in her wedding-dress, which was chosen 'not for its fine glossy surface, but for such qualities as wear well.'" The poultry fancy is certainly advancing; but we are not yet come to the degree of *mania* attained by the amateur, who, when asked whether his birds were good for the table, was utterly at a loss to comprehend the drift of such an extraordinary question.

Exhibitors, appearing as such for the first time, have several little points to learn; nor will it give offence to allude to them here, for the benefit of future adventurers on the same stage. Thus, in catching birds for the show, it is as well not to seize them by the tail, lest they have to appear in their pens deficient in a portion, or the whole of that appendage; nor, except in the case of Frizzled fowls, is rumpled and tumbled plumage any recommendation. Birds, to compete for prizes, may as well be in good as in bad condition. Single-combed Bantams have no great chance of success; still less would it be advisable to associate single-combed cocks with double-combed hens, or *vice versa*, even with Dorkings, with which either form is allowable. No given pen is thought the better of by the judges for containing hens of the greatest possible variety in shape, colour, and age, &c., &c. Half a word to the wise suffices.

The Cochins, the high aristocracy of poultrydom, at present riding on the upper circumference of the wheel of fortune, destined to afford their angust presence. As good birds as reasonable men need care to have, were exhibited by Mr. R. H. Bowman, Mr. A. Blee, and the Rev. W. Wriothesley Wingfield. The Spanish class must be referred to the preceding "&c., &c., &c." with the simple hint, that those who wish to get on well with Spaniards, must literally carry out the oriental metaphor of "making their faces white."

No Game fowl were present to disturb the Corn Hall by their bickerings, which was rather a pity, for they are very pretty, very useful, and very various. True, they are quarrelsome, though not so incorrigibly as is believed, or as they are apt to give cause for believing, so long as they are incessantly checked and insulted on the least manifestation of their natural propensity. Besides, a little spirit is the salt of character. How is a young female, for the time being in a state of widowhood, to provide for and protect ten or twelve little ones, unless she be gifted with some spice of energy to carry her through.

Most, if not all of these little defects will be amended another year. In an isolated, yet central, meeting like this, it is more instructive to visitors, though it may be less gratifying to the tastes of exhibitors, to have every class fairly represented, rather than that one or two should appear in great perfection to the exclusion of the rest. Hence the strong motive for attracting a well-filled extra class,

which need not every year offer the same features, but always something good and unexpected. For the "Copper Moss" fowls, prime favourites as they are in Yorkshire, much is not here pleaded; but a few of the "Silver Moss," or "Silver Moonies," from Warwickshire, might have excited admiration. Why they are called "Moonies" is difficult to divine; they are thickly studded with circular black spots on a white ground. Some barbarous natives paint a certain personage white; the tradition still remains that the moon may be made of green cheese; but a black moon is an unheard-of incongruity. A handsome pen of P^ea-fowl and their young ought not to pass unnoticed.

The Penzance market is a handsome granite building. The lower portion is principally filled with butcher's stalls; the upper story, or Corn Market,—a long, large, and lofty room, with a not over-decorated interior, but perfectly convenient,—was used for the Poultry Show. Some of the principal families of the neighbourhood attended. The total number of visitors was about a thousand, between twelve o'clock and a quarter before four. Had it been possible to light the Corn Market with gas, and given an evening exhibition, the returns would have been greatly increased.

The arrangements were judicious, and much satisfaction was expressed by the visitors, and which, indeed, was only a deserved testimony to the abilities of the secretaries,—the Rev. W. Wriothesley Wingfield, and E. H. Rodd, Esq. The kindness and hospitality exercised by these gentlemen, in addition to their social position, were certain to guarantee the success of an Infant Association like that which has just made its appearance in the south-west. On this occasion, the Rev. E. S. Dixon acted as sole judge. Undesirable as such an office is, he could not hesitate to accept it, after the entire confidence reposed in him by his constituents, the Exhibitors. The awards seemed to give satisfaction, and were considered just; a gratifying result to all parties.

GARDENING GOSSIP.

INDEPENDENT of the intense interest which attaches to the subject of Sir John Richardson's *Arctic Searching Expedition*, just published, it deserves a perusal on account of the abundance of its amusing and instructive details, nor are the least so those relative to cultivated plants. It was not newly-trodden ground to Sir John Richardson, and it is pleasing to observe his recognition of his former footsteps, such as this, on arriving at the Rainy River—

"It was in a patch of burnt woods in this vicinity that, in the year 1820, I discovered the beautiful *Eutoca Frank-linii*, now so common an ornament of our gardens." On the 6th of July, at the Pine Portage on Clear Water River, they found "*Lonicera parviflora* showing a profusion of rich yellow, tinged with red, and fragrant flowers, and gathered ripe strawberries for the first time in the season." At Fort Simpson, Sir J. Richardson says, "*Barley* is usually sown from the 20th to the 25th of May, and is expected to be ripe on the 20th of August, after an interval of 92 days. In some seasons, it has ripened on the 15th. *Oats*, which take longer time, do not thrive quite so well; and *Wheat* does not come to maturity. *Potatoes* yield well, and no disease has as yet affected them, though the early frosts sometimes hurt the crop. *Barley*, in favourable seasons, gives a good return at Fort Norman, further down the river, and *Potatoes*, and various garden vegetables, are also raised there. The 65th parallel of latitude may, therefore, be considered as the northern limit of corn crops in this meridian. Wheat does not reach beyond the 60th." It is curious to find that in October, 1836, a pit sunk in a heavy mixture of sand and clay, to the depth of 16 ft. 10 in., revealed 10 ft. 7 in., of thawed soil on the surface, and 6 ft. 3 in. of a permanently frozen layer, beneath which the ground was not frozen. At length, at Fort Good Hope, on the Mackenzie River, Sir John Richardson reached, in parallel about 67°, the latitude in which even the hardest garden vegetables could not be productive. "A few turnips, radishes, and some other culinary vegetables grow in a warm corner,

under the stockades, but no corn is cultivated there, nor do potatoes repay the labour of planting." Some of our garden inhabitants, however, struggle on as far as latitude 68° 37'; for there, in the valley of the Mackenzie River, Sir J. Richardson found the *Red Currant*, *Rosa blanda*, *Kalmia glauca*, *Nardosmia palmata*, and *Lupinus perennis*.

We have received *Messrs. Rendles'*, of Plymouth, *Messrs. Keynes'*, of Salisbury, and other nurserymen's Catalogues, all giving desirable information; but we cannot commend any to especial notice. If we did, our pages must be loaded with such references, for it would not be fair to make a selection. Our commendation would be worth nothing if confined to those who advertise in our columns.

Under the very contradictory title of *The White Blackberry*, a plant of a new fruit has been sent to the Horticultural Society at Chiswick. It is perfectly hardy, being found in North America, in latitude 44° 30'. Its discoverer is Mr. J. S. Needham, of Danvers, in Massachusetts. It is of the colour of the white Sweetwater grape, "but when grown in the open air is of a darker hue." It is said to be sweeter than the blackberry, with a mulberry flavour. We advise our readers not to have their expectations raised too highly.

TRELLISES, ESPALIER RAILS, &c.

SOME persons may wonder at our attempting to give so much significance to these remnants of the olden time, but we do so under the assurance that when adopted in those days, they were so managed as not to carry out a tithe of the advantages of which they are capable, and, in fact, that the trees thereon were grossly mismanaged in the majority of cases, and in some as much neglected as an overgrown quick hedge. Indeed, this might be said of most of the wall trees; and with the modern and more simplified practice as to fruit-trees, commencing as it does at the right end—root culture—there can be little doubt that trellises will yet become more general still. The great facilities afforded in these days for getting articles of the kind, of any construction, at a great reduction of cost as compared with bygone days, is another great inducement to their more general adoption. As to their effect in a garden, who does not admire a neat trellis bordering the principal walk or walks of the kitchen-garden, uniformly clothed with our best kinds of fruits, and in good bearing? Here, under good management, appears order and system, and the latter, in our opinion, should, as far as possible, appear stamped on the face of everything, from the strictly parallel lines of vegetable cropping up to the range of hothouses. And here it may be observed that, as a connecting link of an intermediate character, to unite, as it were, in a whole, the culinary department of gardening, what better than espalier rails, fruit-tree arcades, or any other artistic device, which is at once obviously contributory to fruitfulness, and conducive to the general effect. There is something so inharmonious, so incompatible, and so unconnected, between the row of fine houses, pits, &c., at one end of the garden, and the rough, unsystematic, and unmanageably coarse standard fruit-trees, which but too frequently smother the borders, that the eye of order can never be thoroughly satisfied with such a state of discordance.

But these neat rails need not be absolutely confined to the kitchen-garden. In almost all places of any pretensions, certain by-scenes or transition portions exist, which, in all propriety, may, and ought to, combine the tone of the kitchen department and the floral. Indeed

were we employed in laying out grounds, we should invariably attempt to introduce characters of this description. Where straight walks can be used in such intermediate portions, what more appropriate than the strained wire trellis, with, perhaps, annuals, tree roses, &c. Much more might be suggested as to their employment as a *decorative* affair, but we must pass on to a consideration of their main features as *useful* appendances of the fruit garden.

We would wish it to be understood in the outset, that this trellis system *must* be coupled with the most perfect root control: without this the whole may prove deceptive or unsatisfactory. Indeed, the want of this was the chief cause of the imperfect success of former days. Trees planted in rich soils, on improper stocks, with liberty at their roots to ramble uncontrolled, no wonder that they become barren, full of timber, and unmanageable. How is it likely that any fruit tree, the bearing properties of which are totally dependant on the steady production of wood of very moderate robustness of character, should be able to produce and mature such wood by a close system of pruning, forced on the cultivator by the circumstances of the case, with a root action equal to thrice the amount of leaves?

We shall, therefore, feel bound to join, at all times, a trellis-system with our *platform-mode* of planting, so fully detailed in back volumes of THE COTTAGE GARDENER. This we have so long proved, in such a host of cases, with every kind of fruit-tree, and with so much success, that we again beg to recommend it with the utmost confidence. Indeed, the dwarfing system, now so prevalent in gardens, at once points to the necessity for possessing as perfect a control over the root as the branches; large and coarse trees are not compatible with the general advance in horticulture, whether as to early profit or effect.

We may now proceed to show the advantages, independent of mere appearance, that a line of trellis possesses over a row of rough standards untrained. In the first place, it best admits LIGHT, that great essential to a fruitful habit, as also to the promotion of high flavour, colour, and keeping properties in most fruits. There needs little argument to convince our readers that the trellis enjoys such advantages in a very superior degree, especially if the trees by the *platform*, or any other sound dwarfing mode, produce scarcely any waste spray. Equality of light is of the highest importance: thus the ordinary standard does not acquire; there must be a shady side.

CIRCULATION OF AIR is another condition secured by the trellis; a condition conducive to the superiority of the fruit. It is necessary to distinguish well between a free circulation of air and wind. The circulation here alluded to, is merely an equaliser of heat; a cooling wind is a disperser of heat. Now, it is plain, that eddies of air cannot be induced by a trellis, as by a dead wall, or by the ordinary standard. The wind, therefore, may readily pass through any portion of a line of trellis.

WARMTH is another most important affair, and is enjoyed in a higher degree by trellis trees, than by ordinary standards; for in the first place, the chief volume of their branches is nearer the ground; and in the second, the free admission of light necessarily brings heat in its train. And when we come to suggest the occasional application of copings, another accessory to a superior degree of warmth will be shown.

PROTECTION.—This is one of the most important points of all; protection from severe frosts, from cutting winds, from hail storms, &c. We stay not here to discuss the question of whether a judicious protection is beneficial; if we mistake not, this is already settled with the majority of our most discerning horticulturists. For our own part, we would, if hard put to, rather suspend the tablecloth over a pet apricot-tree, than

suffer the delicate pistils to become bound in an icy casing, produced, perhaps, by some five or ten degrees of frost. In spite, therefore, of the enormous temptation offered to some Horticultural Punch, to raise a pun at our expense, we avow ourselves "protectionists" of blossoms. But here another matter presents itself—*protection from birds*, &c., and in addition, *retardation*. Now, it will not be found difficult to kill all these birds with one stone, and, indeed, our gardening economics require that such should be done if possible.

To recapitulate then:—we desire to see a dwarfing system done justice to in our gardens, the necessity of root-pruning appreciated, branch-pruning reduced to a minimum, and the causes which give birth to such myriads of destructive insects removed. Added to this, the power to receive the greatest amount of benefit from the sun's rays on the one hand, and on the other to be able to ward them off with facility and economy, after the object for which they were encouraged is consummated—in other words, to be able to prolong the season of most of our fruits. Now, these are objects of importance, not only to our nobility and gentry, but to the million also; for why should not even the cottager enjoy his gooseberries, his raspberries, or his currants, a month longer, if such can be accomplished?

The middle classes of society, however—the villa gardener, and our suburban friends—our acre, and even half-acre cultivators,—for whom it is to be presumed the busy little COTTAGE GARDENER has done much already, and who require highly-simplified and a much-in-a-small-space kind of plans,—those it is that are most nearly interested in an onward march of the kind; for their little gardens are to them a source of high delight; let us also try to make them profitable. One brief letter may not settle this question; it must be returned to as opportunities occur; and before the end of planting time, we will endeavour to show forth the details. Amongst other arguments for a reform in this branch of gardening, the production of superior vegetables, by the admission of a free circulation of air, is no trifle; added to which, the interest created during the long days of summer, by attending to growth-pruning, which our readers, especially of the fair sex, may easily accomplish during their leisure walks by finger-and-thumb work, without having to send every day for those indiscriminating gentlemen, the jobbing gardeners.

R. ERRINGTON.

BEDDING GERANIUMS.

OF all the different branches of gardening in which I have been engaged, that of improving the races that we use in the decoration of the flower-garden is my peculiar hobby, and that which I mean to follow out as a hobby in my retirement; but I find that I have too many irons in the fire for the ensuing season, which will prevent me from getting up a little greenhouse in which to carry out my experiments. To keep my hands in practice, however, I shall probably cross a few bedding Geraniums out in the borders, although, at present, I have neither border, bed, or Geranium, to go on with; but through the freemasonry of gardening, an old gardener without money can always find more plants than he requires; indeed, some of my old friends have invited me already to come and draw on their stores on these very conditions; and as to borders, although I cannot yet boast of "my men," I have one strong gardener at work, and a good worker he is, trenching up beautiful loamy soil that has not been stirred since Noah floated in the ark. My gardener, Mr. Eacott, is a thorough florist, having served under Mr. Glenny for more than three long years, and was in every show-room in London, with thousands of beautiful plants; so, after putting the garden to rights, Charlie will teach me all

the secrets about florists' flowers, when they are round enough and smooth enough on the edges, when balls or half balls, or flat or sharp about the face, and all that sort of thing; and who knows but that, between us, we may not hit on some new scheme which will excel all the rules of the old florists' in rearing and improving seedlings, and yet make a great stir in our own way, notwithstanding these small beginnings. One thing is quite certain, and that is the best feature of our establishment, we shall have no secrets in the matter, but will talk and write about all we do, whether we fail or make a good hit of it. You shall always hear both sides of the question, and also such suggestions as the nature of the subjects under experiment may point out to ourselves, and that is more than what "used to be."

Now, before we encumber ourselves with too many of our own notions, we shall be very thankful to receive kindly hints about such and such species and varieties as are likely, in the eyes of the sender, to produce improvements by cross breeding, especially if the parties themselves have done a little that way with their own rough hands, or delicate fingers—I say delicate fingers, because the ladies have taken up this fancy as well as any of us. It was only the other day that "Verbena," page 219, was told by the editor that her questions about crossing Geraniums involved "the most difficult problem of the day." My own progress has brought me down to the fourth stage on the journey towards the point inquired about by "Verbena," namely, the way to get a purple bedder with flowers like *Unique*, and the plant having the habit of *Lady Mary Fox*, or that of a *Diadematum*. When we have to solve "the most difficult problem," or, indeed, any "problem" about cross breeding, the first grand consideration is to find out what was the habit and what the colour of the first parents, or wild plants from which such and such plants have sprung. That enquiry is often very difficult, because when we receive a wild plant from a foreign land, there is no mark about it by which the best plantsman in the country can determine if it be a genuine species; but that is of very little consequence, either to gardeners, or for a proper classification of plants by botanists, although it is everything to the cross-breeder.

Volumes and volumes have been written to prove that we have a proof of the fact of a wild plant being a genuine species or not; but those who wrote thus knew no more of the subject than the man in the moon; I refer more particularly to foreign authors, who proved, to their own satisfaction, that the thing was so easy to make out that we need not trouble ourselves more about it. The reason why it is of so much importance to a cross-breeder to know whether he has to deal with a genuine species or not, may be illustrated thus: we know that flowers of certain colours refuse to produce certain other colours, let us cross them as we may; the want of a *blue Dahlia* is a familiar instance in every one's mouth. We know, also, that certain colours, if they can be changed at all, will take many generations to do so. The word generation, in the language of cross-breeding, means the time from sowing a seed to the time the plant from that seed produces seeds of its own. If we were crossing annuals, a generation would only cover a few months, or twelve months at the farthest; therefore, if we are not on the wrong scent as to the colour of the true wild species, although we may fail for many generations, still we may entertain reasonable hopes of producing a given colour to a seedling at last. Not so, however, if we are put on the wrong scent by believing that the first wild plant of the sort which we took in hand was a genuine species, when it was no such thing; and our belief may lead us to work against the stream until our patience is exhausted. To make this still more clear, let us suppose two wild species growing together in Mexico; the one has blue flowers, the other

has pink, and by some means or other the pink got crossed by the pollen of the blue flower, and produced a new colour, let us say a deep lilac. Well, Mr. Lobb goes over there and finds this plant with lilac flowers; he sends it home, and the first botanist who sees it makes it out to be a new *Penstemon*, and being from a wild part of the country, he takes it to be a genuine species, while it is only a variety between two wild species. A young cross-breeder takes it in hand to improve it, or some other *Penstemon* by it; he finds it comes true from seeds, and he has been taught, by volumes of written nonsense, that if a plant comes true from seed it must be a species, and he is thus put off his guard as much as the botanist was by the wild country. He crosses it, and its cross-seedlings, till he gets cross himself, because he cannot turn the colour as he wants. At every crossing something of the original pink or blue comes manifest, and instead of clear, clean colours, he gets a brood of *muddlers*, and, not dreaming of mixed blood in Mr. Lobb's plant, he is working on a wrong scent; and it is purely a matter of chance if he ever gets an improved colour, that chance being that some other species of *Penstemon*, whose colour he despised, but which he tried to cross with as a last resource, acted on the original pink or blue in such a way as to do just what he wanted.

We, at the present day, stand in a worse position than this with respect to many of our bedding Geraniums; not only do we not know the colour or habit of their first parents, but we are ignorant of the colours and habits of many generations which succeeded them; and not only that, but many good breeders, in every generation, are now lost and cannot be replaced. Add to this the fact, that many of them have already reached the age or generation of barrenness, and we may well say, with our editor, that this subject is one of the most difficult problems of the day, but we must face it. And it is a curious coincidence that the very last inquiry on the subject—that by "Verbena"—refers to the newest seedling which I have obtained myself, the best in that line that has yet appeared, and the most difficult to obtain in that strain. It belongs to the fourth generation from the original, working for a purple-flowering bedder in the way of the *Unique*; but I fear it will damp the ardour of "Verbena" when I say that this one seedling took me seven years to work out without being fortunate enough to raise one good seedling of the same breed during the whole time, and even as it is, although my seedling is a perfect gem for a choice small bed in a lady's flower-garden, it is not a real purple, and I fear it will not turn out to be a seeder; and if not, it will take five more years to work out a good purple from its pollen, which is also very scanty. They have named this seedling, *The Shrubland Pet*; it flowered late in 1850, and this last summer I had a little bed of it, and of all the troubles, of these troublesome times, the greatest trouble of all was to preserve this bed from being cut up by more "Verbenas" than I like to name. Some few privileged visitors had a cutting or two of it; some more were promised another year; and some went "by hook or by crook," as is often the case in a scramble like this. It is not in the trade yet, but it is well worth while making a memorandum about it. The plant is very dwarf, but a very free grower, and it strikes like a weed at all seasons; the leaves are sweet-scented, very much jagged on the edges, and, like *Unique*, it is a trailer.

The type plants first made use of are two of the greatest weeds as to flowers among all the Cape Geraniums—*Cupitatum* and *Bipinnatifidum*. The first is a perfect weed in every respect, and is difficult to watch for crossing, the flowers being in close downy heads, and not much larger than a pin's head; the other, with equally insignificant flowers, has very sweet

scented leaves. In gardens it is called *Rasp-leaf*, or the *Skeleton-leaf*, owing to the way the leaves are jagged, and for having a rough touch. All the seedlings of the first crop, or generation, had extraordinary dirty, sickly-looking lilac flowers, and I had to fight battle with the garden-men to save my batch from utter destruction. *Capitatum* is the original from which sprung *Unique*, and *Unique* is the only Geranium that would cross, or whose pollen would act on any of these seedlings.

The pollen of the *Rasp-leaf* would not act at all with them, a fact which surprised me: any one might reasonably suppose that the pollen of a large flower like that of *Unique*, would both overcome the weakly habit of the cross-seedlings, and change the lilac in them to a better tint. I thought so too; but the second cross had the flowers as poor as those of the first cross, but there was little improvement in the strength of the plants, and they were all barren but two. The Geranium tribe, and the tribe of *Lobelias*, are all liable to fall off and turn barren at the second or third generation, and very likely there are many more families having the same predilection, and we are now quite certain that the colour of the original *femula* parent predominates in cross-seedlings for some generations, or if it is washed out by that of the pollen parent, at an early stage, it is very apt to reappear in a later brood. I am perfectly satisfied of all this myself; and I can well conceive how the early cross-breeders were misled by this fact, when they asserted, and as their adherents maintain at the present day, that "cross-bred-seedlings have a constant tendency to revert into the wild tribe;" but there never was a wilder mistake in this world, and any one who may choose to try the experiment, will find it so in the long run. Out of all the numberless varieties we have from cross-breeding I am quite sure that all our art and our philosophy to the bargain, shall never be able to "revert" or change a single one of them into the perfect image of the wildling. This doctrine of reversion has done a great deal of harm by deceiving ardent minds from the pursuit, as it were, and thus preaching up the folly of persevering in experiments which necessarily must lead to no useful result.

Instead of limiting our experiments with the Geraniums, the only chance we have of success is to multiply them much more than we have yet done. We know that from some cause, which we cannot fathom, seedlings of them turn barren at the third generation, if we take original or wild species, and unless we take these wild species, we shall be in the same fix as the florists who are working in a circle, and, therefore, cannot possibly get out of the same strain for want of fresh blood. When a given breed turns barren, instead of giving it up for lost, we should raise ten times more seedlings from the same parents, and out of the vast number there is a chance of a breeder turning up. I have repeatedly proved this, but I cannot fathom why ninety seedlings should come perfectly barren and the hundredth plant be a breeder; but there must be some cause for it. If the *Shrubland Pet* should turn out to be barren, as I fear it will, there is nothing for it but to begin afresh with the same wild parents, because its own immediate parents are lost; a false step on my part; for, without a breeder, we shall lose the strain of *Unique*—the most desirable of the whole race for bedders. I think I knew the parents of *Unique*, but I have no names for them, and I think they also are lost. They call it *Rollinson's Unique*, as if it originated with a person of that name; whereas, I had it from Cork two years before it reached London, and I was told that it originated in the south of Ireland, but I think its biography is lost.

I do not think there is any chance of uniting any other Geranium with *Unique* unless the *Shrubland Pet* yields pollen. It is very difficult to seed by its own

pollen, but I raised several seedlings from it, and they were all as true as if they came from a wild species; and I would strongly advise people to go on with it by its own pollen, in hopes that some one may get a ready breeder from it, which would be a great gain.

There is another variety called *Queen of Portugal*, rather stronger than *Unique*, but as like it as can be, so much so indeed, that unless the two were grown side by side no one could tell the one from the other. The *Queen of Portugal* is much stronger than *Unique*, and I believe it is barren. I could never get a seed from it, but it yields a little pollen. Mr. Davidson, my successor at Shrubland Park, counted twenty two blossoms in one truss of the *Queen of Portugal*, the largest we could find, while the best truss of *Unique* in all the garden had only thirteen blossoms. There are only three plants of this *Queen* at Shrubland, and I believe it is very scarce in the trade, if it can be bought at all. D. BEATON.

BUYING AND CHOOSING PLANTS.

"Good endings are generally the result of good beginnings." This holds equally true in morals, and in the practical routine of the business of every-day life. Exceptions there are both in men and things, where the pleasing *endings* stand out in a bold relief, that never could have been prophesied from the reckless and meagre beginnings. The strikingness of such a result, arising from its very unfrequency, instead of contradicting, gives strength and validity to our maxim. Unhealthy, lanky plants have been cut, twisted, and turned, so as to be rendered interesting specimens after all. But these are the *exceptions*, and not likely to show themselves under the care of the inexperienced. Purchasing a falsely-praised new plant, which turns out worthless, notwithstanding its high price, conjures up ideas of dishonesty and gambling—the most inappropriate associations for the beauties of vegetable nature. Obtaining plants, beautiful for present display, but which cannot be made much of for the future, except at the expense of an experience and conveniences which many do not yet possess, creates a fostering discontent, the not very soft murmurs of which, at times, reach us; while, in reality, little, if any, blame could be fastened on any one.

Now, so convinced am I of the *bettering* influence of the love of plants, that I would look upon the weakening of that love as a direct loss, not merely to the individual, but to the community of which he is a member, and, therefore, I would wish, by a hint or two, to remove all cause of irritation and disappointment, by leading our friends, first, to form a clear estimate of what they expect, and secondly, if permanent and growing interest is their object, to attend, above all things, to the *beginnings*—the first training of the plants.

It is more frequently the case than otherwise, that purchasers send to the nurserymen for their plants instead of selecting them there. In this case, clear and distinct orders should be given, as to your wishes, when plants of standing and increasing interest are wanted. For this attention you must expect to pay *extra*.

When a present, or a no very definite permanent result is wanted; when you wish a certain effect to be produced for so much money, then it will be to your interest to leave the selection to the judgment and the honour of the nurseryman. In these circumstances you will find in almost every case the most liberal and honourable treatment. But still you must not forget, that even though the nurseryman be an enthusiast himself, and though it is his *interest*, as well as his *duty*, to use you well, that, nevertheless, though free from the roguery of Peter Pindar's razor man, he keeps and grows his plants for *selling*. With every disposition to oblige

his customers, therefore, merely to keep his head above water in these times, he must look strictly at the matter in a commercial point of view. Like other sellers, the longer he keeps his goods, the more expense they entail upon him, not only for attention, but also for house room; and just like other sellers, he finds that for what he has kept so long, unless for some definite purpose, the *knowing ones* would not condescend to give him an offer—would not even have them for the carrying home. In a general order, therefore, it is clearly his interest to get rid of as many of these old plants as possible, for saving space, and saving time and labour. For many purposes they answer well, as their stunted condition causes them to bloom freely, but as to making a fine specimen out of such hide-bound and pot-bound hard-wooded plants, it would be next to labour thrown away. If we have reason to complain, it is when such old tallish plants, so fascinating to the eye of the uninitiated, are sent to us instead of young dwarf stocky stuff, the roots of which have not had time to become matted. In large towns, where the love of floral beauty, as in London, is increasing, there is always a means of getting rid of these old plants when in bloom. In country places, where pot plants are considered more a luxury, and those who have them wish to grow them well, such plants are next to a dead-loss stock.

Thinking over these and similar matters, would dry up the sources of many complaints and disappointments.

In the case of all soft-wooded plants, where both branches and roots permit of being pruned in freely, there is little danger of receiving old plants, as the proper juices stored up in the stem, or collar, will cause such plants to grow and bloom better than young ones. Such are *not* to be rejected because the plant has been in pot a year or two; nay, it would often be advisable to give an occasional consideration to obtain it, though we would carelessly pass by all such old plants that belonged to the hard-wooded, hair-rooted sections. I remember a case somewhat in point:—Application was made for some *Pelargoniums* more distinguished for free-flowering than their floral properties. The answer returned was, "That the stock was not yet ready; but that they had cut down a number of small plants of the kinds wanted, and as their stock was large, he might have these cut-down plants at the same price as young ones." Acting on advice, these plants were received, and right well did they repay the labour bestowed upon them. The cultivator imagined that he had got a "wrinkle," and was anxious to have another opportunity of testing it; nor did he wait so very long. He ran against a heap of heaths, healthy enough looking, though rather lanky, with plenty of flower-buds on them, though, as their owner stated, they had been in the same pots for years. He never mentioned what he intended doing with them, for fear their proprietor might clap a percentage on the very low price he asked for them. Growing heaths on the one-shift system, was then exciting great attention, and visions of great bushes were already sitting before his mind's eye, joined to the wonder depicted in the countenances of admiring friends. Home the plants were carried, the finishing of their blooming could not be waited for, large shifts were given them, the shoots were tied down, *secundum artem*, and all seemed to go merry as a marriage bell; but everything afterwards that was heard or known of these wondrous plants was an ominous shake of the head, whenever the one or the large shift system was alluded to. It wants no gift to divine their sudden and quick resting-place, and yet such plants, properly treated, would have been useful. Pruned after flowering, and top-dressed, they might have yielded flowers for several years. Shifted after fresh growth had commenced, provided the first shift was the smallest possible, and the

pot being broken, portions clinging to the sides of the sides of the ball allowed to remain, would be attended with profit. These shifts, several times repeated, and a free growth induced, a larger shift might afterwards be given, and with great care a good specimen ultimately formed. But, unless as an experiment, why all this labour, when a nice little plant in a small pot, and a few inches in height, just growing freely but not pot-bound, would with less care, and less time, and less risk of failure, make a better specimen? From such small plants large specimens may soon be formed, by liberal attention and large shiftings. Would that I could say, from my own experience, that their beauty was as long lived, as in the case of those plants grown more slowly. These are matters that have obtained, and will yet receive, attention.

In the meantime, I trust it will be obvious that those who desire to possess large, nice-formed, bushy, healthy, hard-wooded plants, such as *Erica*, *Epauris*, *Chorozema*, *Hovea*, *Pimelea*, &c., must obtain such specimens, either prepared, or preparing, and not grudge the extra remuneration for attendance, house-room, timely shiftings, &c., which the getting up such plants involves. Or if this does not suit, then the youngest that can be got, provided they have been potted off, and are growing healthy and bushy, will be the best. Between these expensive-preparing specimens, and these young things waiting your rearing, there is not one prudent half-way halting-place. Far superior is a plant four or six inches in height, with laterals nearing the soil, than one three or six times that height, and half of that space destitute of healthy shoots and foliage, unless, indeed, you wish to grow little standards. Beginning thus, and proper attention bestowed, high hopes may be formed of the *endings*.

One word more. In purchasing, and especially such young stock, pay attention to the *temperature* and *atmospheric moisture* such plants were enjoying. Without the idea of misleading, as a mere matter of business, the nurseryman wishes to get his young stock into a saleable condition as soon as possible. By suddenly altering these conditions a ruinous check is frequently given.

R. FISH.

EXOTIC ORCHIDACEÆ.

ORCHIDS THAT THRIVE WELL IN POTS.

ZYGOPETALUM CULTURE.—This fine family is worthy of the utmost skill and attention of the cultivator. Unlike too many of the genera, which have many species with small insignificant flowers, and are, in consequence, useless as objects of ornament and beauty, every species of the family of *Zygopetalum* are beautiful, yet some are more beautiful when in bloom than others, as we have indicated in our description of them.

There are some few species more difficult to cultivate than others, and to these we will first direct our attention. They are—*Z. cochleare*, *Z. maxillare*, and *Z. rostratum*. These three have finer roots and a more delicate constitution than their more robust relatives, especially the first and the last. The compost for these should be more open and lighter; it should consist of fibrous peat, chopped into lumps about the size of an ordinary peach, and then pulled into smaller pieces with the hand, and the finest particles sifted out with a fine sieve. What remains in the sieve is what is to be used for potting. Then chop some sphagnum (white bog moss) moderately small, and with the same sieve sift it, using only what remains in the sieve. Then procure some willow or poplar wood (branches the thickness of a man's arm are the best), commence chopping these branches near the bottom, with a sharp bill-hook, into pieces of various sizes, from that of a hazel-nut to that of a hen's egg. Sift these, to take out any dust or very

small particles that may be made in the process of chopping. If a few small pieces of charcoal are added they will be useful. The three former articles mix in equal quantities, adding the charcoal afterwards, and mixing it equally through the mass. Then, when the plants begin to grow, turn them out of their pots, and gently shake the old soil away from their roots. Let all dead roots be trimmed clean off, but preserve the living ones with the greatest care. Fill the new pots half full of drainage, place some of the roughest pieces of the compost upon the drainage, and raise it in the pot high enough to allow the plants to be elevated two or three inches above the rim of the pot. Place the plants in the centre, working in the compost among the roots, pressing it gently down. The plants will feel loose on this hillock in the centre, and will require support: thrust in amongst the compost some short sticks, and tie each pseudo-bulb to them in such a manner as to hold the plants firmly in their place. Press the compost close to the sides of the pots, so as to leave a little space below the rim, to prevent all the water from running off down the outside of the pots; then give a good watering, forcing it rather strongly through the rose of a syringe. This settles the compost close to the roots of the plants. When all are finished, place the plants upon the stage or platform, not far from the glass; give them the usual treatment of plenty of heat (70° to 75° by day, and five or ten degrees less at night), moisture in the atmosphere of the house, and a moderate supply of water at the roots when growing. As soon as the year's growth is perfected, reduce gradually the heat to 60° by day, and the due proportion less at night, giving them almost no water, and a drier atmosphere. With due attention to these points, the plants will soon become healthy and strong, and produce their fragrant flowers abundantly.

The remainder of the genus are more robust in habit, and require a stronger compost. In addition to the peat, sphagnum, &c., we have found the addition of one part of fibrous loam useful. This appears to give a more robust growth to these stronger-growing species; the pseudo-bulbs become larger, the leaves longer and broader, and are then able to produce flower-stems more numerous, more flowers on each, and the individual flowers much longer and more highly coloured.

Mr. Butcher, who was gardener at Ealing Park some years ago, was very successful in cultivating this stronger portion of the genus. He says, in describing his method of treatment—"When the plants are commencing their growth, generally about the month of October, a pot of suitable size is filled three-parts-full of potsherds, and the remainder with close peat, which is raised about three inches above the rim of the pot; the plant is then secured in its position with small pieces of close peat, fastened down with pegs of wood. I prefer close peat for these plants, as I have found it do better than in lighter and more fibrous peat; the plant so potted is then placed in the orchid house, temperature ranging from 60° to 70°, the atmosphere moist, the plant kept moist, and most liberally supplied with water as it advances in growth. When that is completed, the plant is removed to the plant stove, where the temperature ranges from 50° to 60°, and water is given sparingly; but the plant is never allowed to become quite dry; it there remains till it again commences growth, when it undergoes the same treatment as before." With all this we agree, excepting we prefer the addition of fibrous loam to the peat, which we also prefer of a more open texture. The growth, or culture, of orchids is much better understood now than it was when Mr. Butcher wrote the above, nearly nine years ago; yet his directions, as to a season of growth and a season of rest, are in accordance with the practice of the best cultivators at this day.

T. APPLEY.

VERBENA CULTURE FOR EXHIBITING.

(Continued from page 229.)

PLANTING AND POTTING.—These two important operations have been already partly touched upon, but not so fully as we think necessary, that our readers may fully know how to perform them. The distance the plants should be from each other has been mentioned—on that head we have nothing more to say. The best tool to use in planting is a garden trowel. Set the plants in their places, turn the first plant out of the pot, pick out the crotches from the bottom of the ball, loosen the roots a little from amongst the soil, make the hole with the trowel just so deep as to allow the ball to be a quarter-of-an-inch below the level of the bed, but no more, for if planted deeper, and wet weather should ensue, several of the plants would be infected with the damp disease and go off at once; level the earth about the plants, pressing it firmly close to them. Proceed thus till all are finished, then rake the bed smooth; give each plant a good watering, and cover them with pots every night, till all danger of late frosts are over; then remove the pots away to some snug corner; stir up the surface of the bed with a short three-pronged fork, leaving the soil rather rough; it will then retain the spring and summer rains more effectually, and be less liable to bake and crack with the sun. As the plants advance in growth, have some hooked pegs handy, and peg the shoots down to the earth, they will soon root into it and obtain fresh support, and, consequently, strength to bring to perfection large trusses of bright-coloured blooms. Let the shoots be equally spread all over the bed, but should the centre of each plant become naked, it may be filled up with shoots brought back again from the extremities. Blooming shoots must be allowed to rise up pretty equally distanced from each other, and will soon require a stick to each to support them and keep them in proper order. If they are allowed to grow at random, it is very likely some of the best blooms will be near the earth, and by heavy showers be dashed with dirt and spoiled.

Care must be taken that the plants do not exhaust themselves with flowering before exhibition days. To prevent this, nip off the greater part, if not the whole of the buds, till within six or seven weeks of the day when they are wanted for the show. Should the weather in the meantime prove dry, it will be of immense advantage to give them occasionally a regular good steeping of soft water—not a mere dribble, but such a watering as will descend to the lowest roots. A mulching of moss, or short litter, would prevent a too great evaporation, especially if laid on immediately after this liberal watering.

We must now leave this part of our subject for a time, and direct our attention to the second part of this section—the *potting*. It was stated that the first potting should be performed early in March. The newly-potted plants must be placed upon the pots in the frame or pit, and be carefully attended to, with due supplies of soft water, but in this early stage the watering must not be excessive. The time of giving water is of some consequence, for if given in the evening, when the powers of appropriation are small, the nights long, and perhaps frosty or damp, the cold moisture arising from the watered soil will be greatly injurious. Water, then, early in the day, and give plenty of air to dry up the damp. This will preserve the foliage, and keep the plants growing until the warmer weather and greater wants of the plants warrant the afternoon's application of water.

With this regular and judicious care the plants will grow rapidly, and will soon require a second shift. Let the compost be placed under cover for a few days previously, to become moderately dry and aired. Much

mischief has been done by neglecting this necessary precaution. When it is in proper condition, some fine morning, bring the plants, one or two at a time, to the potting-bench, and proceed to pot them. The pots should either be new, or well-washed, as should also the drainage. At this shift they will require, at least, an inch of drainage. There should be about an inch of space between the ball and the sides of the pots. Turn the plants carefully out of the pots, pick out the greater part of the old drainage, place as much soil upon the new drainage as will raise the ball nearly level with the rim of the pot, avoid deep potting (it is only coarse-growing plants that will bear it, such as the *Dahlia* or the *Chrysanthemum*), press the earth down round the ball firmly, but gently, and give a smart stroke upon a firm part of the bench to settle the whole. This will leave sufficient space within the rim of the pot to hold a good watering. As the plants are finished potting, return them to the pit, and water them moderately overhead. During the operation, let everything they need be done to them in the way of pegging down the shoots when long enough, trimming off decayed leaves, stopping the shoots, applying sticks, and cleaning off insects if any appear on the plants. T. APPLEBY.

(To be continued.)

NOTES ON THE CUCUMBER.

WE have, at various times during the last few weeks, directed the attention of our readers to the necessity of keeping a watchful eye over their cucumber plants, which we presume some to have in a bearing state in pits heated by some contrivance to which fire is applied; it is true they may be carried through the winter, in a structure heated something after the manner of what used to be called "Mills's pit;" but the labour attending removing, and replacing the lining, and the consequent uncertainty of being at all times able to communicate the necessary amount of heat, has led to that system being all but abandoned as an agent for winter forcing, and another one substituted, heated by hot water, over which we have complete control. Now, we presume it to be a pit of the latter class that winter cucumbers have been growing in, or it might be in a corner of the pine pit, or similar place; at all events, the atmosphere necessary to maintain this delicate plant in health during the late dull period, must have been a congenial one, and such as we have before recommended ought to be some 5° warmer than that of the usual stove; and we shall presume the skilful cultivator to have been cutting fruit for some time, and likely to continue doing so. With him, the danger of "the dark days" will speedily be past, and the resources he has at command enables him to rear young plants in any number, to furnish his dung frames in spring and early summer; we, therefore, dismiss him for the present, and turn our attention to the less fortunate class of cultivators, and which present by far the most numerous portion, who have no other mode of growing this fruit than in the ordinary box frame, heated by fermenting substances, yet they often contrive to grow it to a degree of perfection which has never been excelled by those grown in the most efficiently hot-water-heated pit. Besides that, many who have such a pit have other uses for it, so that this important production must find a place out-of-doors somewhere.

We shall begin by supposing the amateur to reside in a rural district, remote from any place where he has any chance to obtain a pot or two of plants, and, therefore, is under the necessity of rearing them for himself; but in such a situation we suppose him to be possessed of a tolerable share of stable dung and tree leaves (tan is more a suburban article). The stable dung we recommend by all means to be removed from the place where

it has been deposited, before it becomes heated so as to appear white and mouldy. After being brought to some suitable place, let it be well mixed by throwing into a heap, which, on the third day after, will want turning again, and three days after that will require another turning; in fact, this turning and mixing must be continued until that disagreeable smell it has at first begins to subside; and then, if necessary, a few leaves may be added, after which the turning need not be so frequent, as the tendency to heat so violently, and thus waste its powers, will, by this time, have been overcome, and a genial warmth, emitting a vapour, which, whatever be the names of the gases forming its component parts, is better known to gardeners as a fine, sweet, growing heat, so that the amateur, or even he who has never noticed the manner in which things are growing, will at once pronounce it as a likely medium for the purpose.

Now, while the above has been going on, we presume a preliminary process in the way of germinating the seed has been carried on simultaneously. Often in our younger days, and when other means were scarce, we have plunged the pots containing our cucumber seeds in the mass of dung preparing for the bed, covering them up with a common hand-light; this plan we even adopt now with seeds that are sluggish, or unwilling to grow by other means. But in recommending this homely plan to the amateur, we must not omit warning him of the dangers attending it, and he must have some other place ready to remove his pots of seedlings to, just as they are breaking through the ground, otherwise the steam and other foul vapours will prove fatal to them; nevertheless, we have sometimes managed to make up a sort of a rude bed of the best-tempered portion of the dung, at a corner of the heap, and, covering it with ashes, have placed a small frame on, in which our seedlings succeeded for a time, until the bed intended for their final abode was in readiness. We may here mention, that there is an advantage in delaying this part of the process, provided the plants are progressing favourably where they are; many a young gardener is in too great a hurry to get the plants turned out, vainly thinking that is a token of carliness and good management, while his less ambitious neighbour, by not doing that so soon, has been able to "cut fruit" quite as early. The reasons are apparent: the newly made-up bed exhausts an amount of heat to little or no purpose, and cold weather coming on before it can derive much benefit from solar influences, the plants are checked. Certainly, assiduous lining will prevent such a state of things, but what we want to instil into the mind of the amateur is to "husband his resources." We have no question but the demand on them from other quarters will be quite equal to the supply, but we will suppose the number of seed pots and pans to be such as to fill a frame (as we never like to see a genial heat idle), and pots of melons, pans of celery, and other seed pots (not plants or cuttings) might also form a portion of the contents. When such is the case, let a suitable bed be prepared at once, by building up a proper-sized one of the sweetest of the prepared dung; and, the top being covered pretty deep with coal ashes, the various pots may then be plunged.

In general, there will be sufficient moisture to serve without any watering, and old seeds especially must be watered with caution. We must not forget that in the making and fitting up of this bed the interior of the box ought to be filled with fermenting materials, so that about three inches of ashes will raise the pots to within six inches of the glass, which must be particularly clean, and if glazed with the "long sheet" so much the better. The frame inside ought to have had a thorough cleaning previously to using for such an important office.

Supposing all to be going on favourably, the seeds

germinating well, and throwing off the old skin (which sometimes confines the cotyledons of a sickly plant some days, and eventually strangles it), the plants expanded well, with a broad, healthy seed-leaf, the amateur must now prepare for "potting off," by introducing a quantity of clean five-inch pots, with a proportion of rough drainage in each. A quantity of suitable fibry loam and leaf-mould, well mixed, must also be brought in; this compost ought to have been exposed to the action of the frost during autumn, to kill any insect that might be lurking in it. This compost ought to be introduced into some corner of the frame a day or so before it is used, so that it may get warmed properly through. By this time we suppose the seedlings to have become much elongated, and perhaps some of them weak, and hanging over the sides of the pot. Take advantage of the mildest part of the day, and, opening the frame no further than to allow the necessary operations going on, let the pots be half filled with the rough, turfy, leafy compost, adding a very little fine, just in the middle; then with a stick raise the plant gently out of its place, with its roots as entire as possible; lay the roots as much spread as you can, and gently bend the young plant round the sides of the pot in such a manner that its top may come at last to the surface, as near the same direction as they formerly held as possible. This done, secure the plant in that position by a small piece of turfy matter laid against it, and, putting a little fine over the roots, another plant may be inserted in the same pot, taking care to bend it in such a manner that its top may be opposite to the one already in. The pot may be then gently filled with the soil, as any rudeness will be fatal to such delicate plants. When done and labelled, let them be plunged in their places again, and only water if sunny. Of course the water must be some 70° or 80° also; and in the potting the whole is performed by the operator leaning over the frame, and being as expeditious as possible, not letting the least cold air reach them. Nevertheless, a certain amount of air must be admitted daily, or the foul atmosphere inside will soon cease to support vegetable life; and on fine days this quantity must be increased, according to the state of the bed, and other circumstances.

In a seed-bed there are reasons for a more copious admission of air than any other. The small volume of air therein contained, and the contaminating influences it is subjected to, renders some contrivance necessary to obtain a regular supply, softened, or rather warmed, before it comes in contact with the plants; for this purpose we think the old-fashioned method of tilting the lights behind open to many objections, the first of all being the liability of gusts of cold wind driving in so far as to reach the plants, when placed, as we propose, near the glass. We prefer the circulation of air to be circuitous, in order that the cold air may be so far heated as to be harmless. A very simple plan we have adopted sufficiently effects our purpose. A board is nailed on the back, so as to cover the place where air is usually admitted; this board extends about one-and-a-half inches above the top of the light, another one about three inches wide is nailed in a horizontal direction to the first one, so that in sliding the light up, its top runs underneath it, but one-and-a-half-inches below it. Now this space allows the light to be lifted three-quarters of an inch behind, and the ingress and egress of the air having that direction given to it which finally opens to the south, less harm is likely to follow from a liberal supply than by the ordinary "north delivery." But, after all, so much depends on the quantity of sunshine we are favoured with or denied, that the amateur must not be impatient if his plants do not prosper so well as he could wish.

We do not pretend to recommend any particular cucumber, as many of them resemble each other so much, as to make it doubtful whether cultivation is not more

the cause of differing than variety. We would not advise the longest and most "fancy kind" for early use; a hardier, earlier, and more prolific one, would usually suit the amateur better than the crack show kinds of fabulous length. Having ourselves, and most of our friends, grown for several years kinds bearing only a local name, we cannot advise the young beginner which to choose from personal experience, but the *Sion House* is often grown for early use, and excepting that it does not keep well after being cut, there are few more profitable kinds grown. We must defer our remarks on the planting out, &c., until another week.

KITCHEN GARDEN SUNDRIES.—Sow a pan or two of *Celery* and some *Capsicums*, which place in the seed-bed noticed above. Prepare *fermenting material*, as we will next week direct you to a number of things that now want sowing. Pot off *French Beans* that may be coming up. See *Mushroom beds* out-of-doors do not lack covering, and that those in-doors be not suffering from woodlice or want of water; the former are easiest trapped by a cooked potato and a little moss in a pot.

J. ROBSON.

CORNWALL POULTRY SOCIETY.

PENZANCE EXHIBITION. DECEMBER 30, 1851.

PRIZE LIST.—Judge, the Rev. E. S. Dixon, Cringleford Hall, near Norwich.

Class I.—SPANISH.—(Cock and Two Hens).—Second Prize, Mr. W. Hick, Penzance; price 2l. 2s.

Class V.—WHITE DORRING.—(Cock and Two Hens).—First Prize and Medal, Rev. W. W. Wingfield, Gulval, 11. 10s.

Class VII.—COCHIN CHINA.—(Cock and Two Hens).—First Prize and Medal, R. H. Bowman, Esq., Penzance, 30l. Second Prize, Mr. A. Blee, Penzance, 3l. 3s. Second Prize, R. H. Bowman, Esq., Penzance, 10l. Second Prize, Mr. A. Blee, 6l.

Class VIII.—COCHIN CHINA.—(Pen of Six Chickens). First Prize and Medal, Mr. A. Blee, Penzance, 42l. Second Prize, Rev. W. W. Wingfield, Gulval, 8l. 8s. Second Prize, R. H. Bowman, Esq., Penzance, 12l. 12s.

Class IX.—MALAY.—(Cock and Two Hens).—First Prize and Medal, Mr. W. J. Lawrence, Penzance, 2l. 2s.

Class XV.—SILVER HAMBURG.—(Cock and Two Hens).—Second Prize, P. Grenfell, Esq., Gulval, 3l. Second Prize, P. Grenfell, Esq., Gulval, 3l.

Class XVI.—SILVER HAMBURG.—(Pen of Six Chickens).—First Prize and Medal, P. Grenfell, Esq., Gulval, 6l.

Class XVII.—POLAND FOWL.—(Black, with White Crests).—(Cock and Two Hens).—First Prize and Medal, Mr. W. Rowe, Hca, 11. 10s. Second Prize, Mr. R. White, Gulval, 11.

Class XVIII.—POLAND FOWL.—(Black, with White Crests).—(Pen of Six Chickens).—Second Prize, Mr. W. Rowe, Hca, 5l.

Class XXIV.—BANTAMS.—(Cock and Two Hens).—Silver Laced. First Prize and Medal, Mr. J. Fox, Rosevale, 2l. 2s. Second Prize, Mr. W. C. Pennington, Penzance, 6l. White Bantams.—First Prize and Medal, Mr. W. C. Pennington, Penzance, 6l.

Class XXV.—PIGEONS.—Highly commended and Medal, Mr. J. Fox, Rosevale (Jacobines), 7s. 6d. Highly commended and Medal, Mr. W. Wearne, Penzance (Trumpeters) 12s.

Class XXVII.—DRAKE AND TWO DUCKS.—White Aylesbury.—First Prize and Medal, J. S. Bedford, Esq., Pendrea, 5l. Rouen.—First Prize and Medal, Rev. W. W. Wingfield, Gulval, 5l. Any other Variety.—First Prize and Medal, J. S. Bedford, Esq., Pendrea (Black Labrador), 10l. 10s. Commended, Mr. R. Hawke, Alverton (Common), 11. 10s.

Class XXVIII.—TURKEYS.—First Prize and Medal, E. Bolitho, Esq., Trewidden (South American), 2l. each. Second Prize and Two of the Birds highly commended, D. P. Le Grice, Esq., Trecreife (Norfolk), 6l. 6s.

Class XXIX.—GUINEA FOWL.—First Prize and Medal, W. Bolitho, Esq., Chyandour, 3l.

EXTRA CLASS.—Highly Commended and Medal, R. H. Bowman, Esq., Rosevale (Cochin China Cock and Pullet), 21l. Highly Commended and Medal, Mr. W. C. Pennington, Penzance (Golden Pheasants), 12l. 12s. Highly Commended and Medal, W. Bolitho, Esq., Chyandour (Peasants), 10l. cock and hen. Highly Commended and Medal, A. Smith, Esq., Scilly (White Dorkings, pen of Six Chickens), 11. per pair. Highly Commended and Medal, A. Smith, Esq., Scilly (Muscovy Ducks, pen of Six Birds of the year), 15s. per pair. Highly Commended and Medal, A. Smith, Esq., Scilly (Egyptian Geese), 2l. per pair.

CLASS SHOWING IN DAHLIAS.

THE following letter upon this subject is worthy of attention from all exhibitors of the Dahlia; for it must be admitted that the chief difficulties in the way of a general measure arise from the gradual shades by which the bluish-white may commence a series of tints approaching to pinks and crimson, or others, through pale and deeper lilacs to deep purples, and these purples and crimson to heavy

colours bordering closely on black. In short, all the difficulty arises in forming a proper number of classes.

"I have purposed addressing you for some time respecting *class showing* in Dahlias, which I am glad to learn is coming into general use, and is supported by Mr. Glenny in his excellent almanack and other publications. It is the only way to test good flowers, and to give satisfaction to those who take pleasure in seeing the best flowers alone standing among those that win. In this town we have shown Dahlias for many years in classes, and as I think our arrangement of the classes, founded upon many years experience, may in some respects appear to improve that of Mr. Glenny, or at least lead him to give us his reasons for preferring his own list, I shall state to you briefly how I would alter his list, or rather how it differs from that which we usually adopt. The *dark*, or *maroon*, as we call it, is the same with that of Mr. G., except that *R. Cobden* is placed in the *purple* class. Our next class we call *lilac purple*, in which are shown *Mr. Seldon*, *Frederick Jerome*, *Marquis of Aylesbury*, etc., and I think it is a great improvement upon the mere *purple* class, besides giving a distinct variety in class showing, which is of importance. In the *purple* class are shown *Purple Standard*, *Standard of Perfection*, and several others, which are quite distinct from *Beeswing*, *Sir F. Bathurst*, and others, which are shown in the *crimson* class. The *rose* and *lilac* make separate classes, though it is rather difficult always to say in which class flowers ought to be placed. I have often thought that the *rose* class should be confined entirely to flowers of the colour of *Felix*, which is a real rose, and quite distinct from the *Queen of Roses* and others now placed in that class. (I should like to know what Mr. Glenny thinks on this point). In other respects our list entirely agrees with that of Mr. G. I send you these observations, and you may submit them to Mr. Glenny, or publish them in *THE COTTAGE GARDENER*, as you please. Should you wish for any further information on the subject, I shall be glad to supply it."—AN AMATEUR.

So far as we are concerned we are by no means prejudiced, and we should like a few who are interested to give us, like the writer of the above, their notions of classification. We confess that the classes mentioned by us are not original, but founded on what we have seen exhibited, and not on any serious considerations of our own. Ladies, who have a name for every tint, might render us a most essential service by defining the classes. All that is necessary is to preserve in each class a general similarity. It will always be difficult to decide where the light rose leaves off, and the dark rose begins; then, again, there is always a difficulty in the line which separates the shades of lilac from what they call rose, and the colours given by the vendors help to puzzle us. For example, silvery lilac, rosy lilac, rosy purple, purple crimson. Now, when ladies describe silks, they have a name for every colour. They talk of lavender, violet, plum, puce, salmon, silver-grey, cream, primrose, sulphur, and so on, and never seem at a loss to define and to understand. All we require in classifying Dahlias is to have as many classes as there are distinct series of colours. A purple, strictly speaking, is a colour formed of blue and red; but we seem all abroad when we come to those flowers which seem to be made of brown and red. However, we shall be very glad if the writer of the foregoing letter will use our classes as far as they are good, and add his own, to which we shall be most happy to subscribe, and let it be published in *THE COTTAGE GARDENER* for the benefit of many societies who are now about taking up the subject.

Dahlia showing is upon the eve of many changes, and if we are to take our cue from several very earnest discussions among those who take a warm interest in the matter, there seems a strong feeling against the condemnation of eleven good flowers for one bad one. It is seriously considered by many that a new system of judging should be adopted, and that the stands should be placed according to the number of good flowers therein. Thus, if a stand has eighteen good flowers and half-a-dozen good-for-nothing, and there is no other that has more than seventeen so good, the former should win, whereas, according to the present system, twenty-four worse flowers, but none bad, would be put first. There is a good deal to be said for and against the novel system, because, if the prize be for twenty-four flowers, the presumption is that they must be perfect flowers; therefore,

if with twenty-three perfect and fine, there were one that showed an eye, or that was dead, or with eaten or mutilated petals, it would not be considered a flower at all, and there would be only twenty-three on the stand, which would be deemed disqualified. There is plenty of time between this and August to discuss these points further. G. GLENNY.

BIRMINGHAM AND MIDLAND COUNTIES EXHIBITION.

LIST OF POULTRY PRIZES.

(Continued from page 233.)

- Class XVIII.—*GAME FOWL*.—(*Cock and One Hen*).—Prize, 10s., Mr. George Graham, Yardley, Worcestershire; 52l. 10s. Second Prize, 5s., Mr. Edward Lowe, Comberford Mill, near Tamworth; 1l. 5s. (Poleworth Pile). Extra Prize, 10s., Mr. Edwin N. Bullock, Hawthorn House, Handsworth. Prize, 10s., Mr. Thomas Smith, Chesapeake, Birmingham.
- Class XIX.—*GOLDEN PENCILLED HAMBURG*.—(*Cock and Three Hens*).—First Prize, 1l. 1s., or large Silver Medal, Mr. Edward Lowe, Comberford Mill, near Tamworth; 3l. Second Prize, 10s., Mr. James Oldham, Nether Whitacre; 2l. Third Prize, 5s., Mr. John Whiting Ward, Repton; 2l.
- Class XX.—*GOLDEN PENCILLED HAMBURG*.—(*Pen of Six Chickens*).—First Prize, 15s., or small Silver Medal, Mr. Edward Lowe, Comberford Mill, near Tamworth; 2l. 2s. Second Prize, 10s., Mr. John Whiting Ward, Repton; 2l. 2s.
- Class XXI.—*GOLDEN PENCILLED HAMBURG*.—(*Cock and one Hen*).—Prize, 10s., Mr. Edward Lowe, Comberford Mill, near Tamworth; 1l. 5s.
- Class XXII.—*GOLDEN SPANGLED HAMBURG*.—(*Cock and Three Hens*).—First Prize, 1l. 1s., or large Silver Medal, Mr. Henry Clapham, Aireworth, near Keighley, Yorkshire; 2l. 8s. Second Prize, 10s., Mr. Joseph Silk, junior, Beehive Inn, Handsworth; 3l. Third Prize, 5s., Mr. Charles John Mold, Makeney House, Belper; 4l. 4s.
- Class XXIII.—*GOLDEN SPANGLED HAMBURG*.—(*Pen of Six Chickens*).—First Prize, 15s., or small Silver Medal, Mr. James Blackham, Thornhill Farm, Handsworth; 3l. 3s. Second Prize, 10s., Mr. William Banister, Handsworth; 3l.
- Class XXIV.—*GOLDEN SPANGLED HAMBURG*.—(*Cock and One Hen*).—Prize, 10s., Mr. William Dawson, Handsworth; 2l.
- Class XXV.—*SILVER PENCILLED HAMBURG*.—(*Cock and Three Hens*).—First Prize, 1l. 1s., or large Silver Medal, Mr. Thomas Lowe, Whateley, near Fazeley; 1l. 10s. Second Prize, 10s., Mr. Thomas Lowe, Whateley, near Fazeley; 1l. 10s. Third Prize, 5s., Mr. William Hazeldine, Austin, Norton, Shiffnal, Shropshire; 1l. 10s. (Chitprat's).
- Class XXVI.—*SILVER PENCILLED HAMBURG*.—(*Pen of Six Chickens*).—First Prize, 15s., or small Silver Medal, Mr. Thomas Lowe, Whateley, near Fazeley; 2l. 2s. Second Prize, 10s., the Right Hon. Viscount Hill, Hawkstone, Salop; 6l. 6s.
- Class XXVII.—*SILVER PENCILLED HAMBURG*.—(*Cock and One Hen*).—Prize, 10s., Mr. Thomas Lowe, Whateley, near Fazeley; 15s.
- Class XXVIII.—*SILVER SPANGLED HAMBURG*.—(*Cock and Three Hens*).—First Prize, 1l. 1s., or large Silver Medal, Mr. William Latham, Bradford, Yorkshire; 2l. (Silver Pheasant). Second Prize, 10s., Mr. Timothy Town, Keighley, Yorkshire; 6s. each (Silver Pheasant). Third Prize, 5s., Mr. John Harlow, Moseley, near Birmingham; 4l.
- Class XXIX.—*SILVER SPANGLED HAMBURG*.—(*Pen of Six Chickens*).—First Prize, 15s., or small Silver Medal, Mr. Joseph Rinder, Elmwood Grove, Leeds; 3l. Second Prize, 10s., Mr. James Whilock, High Street, Birmingham; 2l. 10s.
- Class XXX.—*SILVER SPANGLED HAMBURG*.—(*Cock and One Hen*).—Prize, 10s., Chas. Robert Colville, Esq., Stretton Hall, near Atherton; 2l. 2s.
- Class XXXI.—*POLAND FOWL*.—(*Black, with White Crests*).—(*Cock and Three Hens*).—First Prize, 1l. 1s., or large Silver Medal, Mr. Edward Hewitt, Eden Cottage, Sparkbrook, near Birmingham; 5l. 5s. Second Prize, 10s., Mr. George H. Smith, Villa Road, Handsworth; 3l. Third Prize, 5s., Mr. Edward Simons, Dale End, Birmingham; 5l. 5s.
- Class XXXII.—*POLAND FOWL*.—(*Black, with White Crests*).—(*Pen of Six Chickens*).—No prize awarded.
- Class XXXIII.—*POLAND FOWL*.—(*Black, with White Crests*).—(*Cock and One Hen*).—Second Prize, 5s., Mr. John Charles Mold, Makeney House, Belper; 3l.
- Class XXXIV.—*POLAND FOWL*.—(*Golden*).—(*Cock and Three Hens*).—First Prize, 1l. 1s., or large Silver Medal, W. G. Vivian, Esq., Singleton, Glamorganshire; 12l. Second Prize, 10s., Mrs. Hosier Williams, Eaton Mascott, near Shrewsbury; 2l. 2s.
- Class XXXV.—*POLAND FOWL*.—(*Golden*).—(*Pen of Six Chickens*).—Prize, 10s., W. G. Vivian, Esq., Singleton, Glamorganshire; 2l. each.
- Class XXXVI.—*POLAND FOWL*.—(*Golden*).—(*Cock and One Hen*).—Prize, 10s., Mr. T. B. Wright, Great Barr, Staffordshire; 1l. 10s.
- Class XXXVII.—*POLAND FOWL*.—(*Silver*).—(*Cock and Three Hens*).—First Prize, 1l. 1s., or large Silver Medal, Mrs. Hosier Williams, Eaton Mascott, near Shrewsbury; 5l. 5s. Second Prize, 10s., Mr. Theodore Bullock, Hawthorn House, Handsworth; 3l. 3s. Third Prize, 5s., Mr. Benjamin Dais, Hunton Hill, Erdington; 2l. 2s.
- Class XXXVIII.—*POLAND FOWL*.—(*Silver*).—(*Pen of Six Chickens*).—First Prize, 15s., or small Silver Medal, Mr. John Whiting Ward, Repton; 1l. 10s. per pair (Spangled).
- Class XXXIX.—*POLAND FOWL*.—(*Silver*).—(*Cock and One Hen*).—Prize, 10s., Mr. James Bissell, Birmingham; 3l. (Spangled).
- Class XL.—*FOR ANY OTHER DISTINCT BREED*.—Prize, 10s., his Royal Highness Prince Albert; 3l. 3s. (Scotch). Prize, his Grace the Duke of Sutherland, Trentham Hall, Staffordshire; 5l. (Siberian or Russian).
- CUCKOO.—First Prize, 15s., or small Silver Medal, Mrs. Hosier Williams, Eaton Mascott, near Shrewsbury; 3l. 3s. Second Prize, 10s., the Right Hon. Viscountess Guernsey, the Bury, near Leamington; 3l. 3s.

RUMPLES.—First Prize, 15s., or small Silver Medal, Mr. George C. Peters, Charlton Cottage, Moseley; 2l. 10s. Second Prize, 10s., Mr. Thomas Beetonson, Vauxhall Grove, Birmingham; 1l. 5s. Third Prize, 5s., Mr. Thomas Beetonson, Vauxhall Grove, Birmingham; 1l. 5s.

ANDALURIAN.—Prize, 10s., Mr. John Taylor, Crescy House, Shepherd's Bush, near London; 6l. 6s.

ANCONA.—Prize, 10s., Mr. Edward Simons, Dale End, Birmingham; 4l. (These never sit; their eggs are nearly as large as the Spanish, and they lay very regularly.)

ITALIAN OR FRIZZLED.—First Prize, 1l., W. G. Vivian, Esq., Singleton, Glamorganshire; 12l. Second Prize, 15s., or small Silver Medal, Mr. Charles Sturge, Birmingham; 1l. 10s. Third Prize, 5s., Mr. George Wigley, Golden's Court, Bull Ring, Birmingham; 2l. 10s.

SHANGHAI CHINA.—Prize, 10s., Mrs. Hoar Williams, Eaton Mascott, near Shrewsbury; 4l. 4s.

WHITE POLAND.—Prize, 10s., W. G. Vivian, Esq., Singleton, Glamorganshire; 10l.

MIXED.—Prize, 5s., George Fleeming, gardener to his Grace the Duke of Sutherland; 5l. (from China, name unknown).

Class XLII.—BANTAMS.—(Cock and Two Hens.)

BANTAMS.—"GOLD-LACED."—First Prize, 10s., Captain Clement Dolves Hill, Sunnerhill, Newport, Shropshire; 10l. (Sir John Sebright's). Second Prize, 5s., Mr. James Bissell, Birmingham; 10l. 10s.

BANTAMS.—"SILVER-LACED."—First Prize, 10s., Mr. James Bissell, Birmingham; 4l. Second Prize, 5s., Mr. Edward Hewitt, Eden Cottage, Sparkbrook, near Birmingham; 4l. (Sir John Sebright's).

WHITE BANTAMS.—First Prize, 10s., Mr. Joseph Rinder, Elmwood Grove, Leeds; 5l. Second Prize, 5s., the Rev. John Hill, the Citadel, Hawkestone, near Shrewsbury; 3l.

BLACK BANTAMS.—First Prize, 10s., the Rev. John Hill, the Citadel, Hawkestone, near Shrewsbury; 2l. Second Prize, 5s., Mr. James Dixon, West Brook Place, Horton, near Bradford, Yorkshire; 1l. 1s.

OTHER VARIETIES.—First Prize, 10s., Mr. Joseph Rinder, Elmwood Grove, Leeds; 3l. 3s. (Barbary). Second Prize, 5s., Mr. Joseph Rinder, Elmwood Grove, Leeds; 3l. 3s. (Barbary).

Class XLIII.—PIGEONS.—JUDGES: Mr. Edward Hale, Handsworth; and Mr. T. L. Parker, Birmingham.—Prize, 5s., Mr. Edward Barber, Monkspath; 30l. (English Carrier). Prize, 5s., Mr. Thomas Beetonson, Vauxhall Grove, Birmingham; 12s. (Antwerp). Prize, 5s., Mr. Joshua Hopkins, Dale End, Birmingham; 10s. (Black Barbe). Prize, 5s., Mr. Joshua Hopkins, Dale End, Birmingham; 2l. 10s. (Blue Pouter). Prize, 5s., Mr. George C. Adkins, Carpenter Road, Edgbaston; 7l. 7s. (Runt). Prize, 5s., Mr. Richard Cox, Highfield, Edgbaston; 10s. (Fantail). Prize, 5s., Mr. Charles Thomas Male, West Bromwich; 15s. (Jacobine). Prize, 5s., Mr. George C. Adkins, Carpenter Road, Edgbaston; 3l. 3s. (Turbit). Prize, 5s., Mr. Philip H. Harper, High Street, Bilston; 3s. (Nun). Extra Prize, 5s., Mr. Joshua Hopkins, Dale End, Birmingham; 1l. 1s. (Nun). Prize, 5s., Mr. George C. Adkins, Carpenter Road, Edgbaston; 3l. (Archangel). Prize, 5s., Mr. Thomas Marston, Digbeth, Birmingham; 1l. (Mottled Trumpeter). Prize, 5s., Mr. George C. Adkins, Carpenter Road, Edgbaston; 10l. 10s. (Almond Tumbler). Extra Prize, 5s., Mr. Edward Armfield, Edgbaston; 5l. 5s. (Almond Tumbler).

Class XLIII.—GESE.—(Gander and Two Geese.)—First Prize, 1l. 1s., and Extra Medal, the Rev. John Robinson, Widmerpool, near Nottingham; 2l. (White). Second Prize, 10s., Thomas Townley Parker, Esq., Sutton Grange, near St. Helen's, Lancashire; 3l. 3s. (cross between Toulouse and English). Third Prize, 5s., Thomas Townley Parker, Esq., Sutton Grange, near St. Helen's, Lancashire; 15l. 15s. (Toulouse). Extra First Prize, 1l. 1s., the Right Hon. the Earl Howe, Gosport, Leicestershire; 1l. 10s. (Spanish). Extra Second Prize, 10s., Thomas Townley Parker, Esq., Sutton Grange, near St. Helen's, Lancashire; 3l. 3s. (Toulouse). Extra Third Prize, 5s., Mr. Thomas Studholme Wilkins, Peddymoor Hall, Sutton Coldfield; 5l. 5s. (Common).

Class XLIV.—DUCKS.—(Drake and Three Ducks.)

WHITE AYLESBURY.—First Prize, 1l. 1s., or large Silver Medal, Mr. Thomas Lowe, Whateley, near Farsley; 1l. 1s. Second Prize, 10s., Mr. George Lowe, Smithfield, Birmingham; 1l. 10s. Third Prize, 5s., the Right Hon. Viscount Hill, Hawkestone, Salop; 3l. Extra Third Prize, 5s., Mr. Edmund Herbert, Powick, Worcestershire; 2l. 2s.

ROUEN.—First Prize, 1l. 1s., or large Silver Medal, Mr. Edward Hewitt, Eden Cottage, Sparkbrook, near Birmingham; 2l. 2s. Second Prize, 10s., Thomas Townley Parker, Esq., Sutton Grange, near St. Helen's, Lancashire; 3l. 3s. Third Prize, 5s., Mr. James Dixon, West Brook Place, Horton, near Bradford, Yorkshire; 2l. 10s.

ANY OTHER VARIETY.—Prize, 10s., Mr. Edward Lowe, Comberford Mill, near Tamworth; 2l. 2s. (Buenos Ayres). Prize, 10s., Mr. Richard Parry Jones, Whitechurch, Shropshire; 3l. 3s. Prize, 5s., Mr. Richard Couchman, Bloomsbury, Birmingham; 1l. 12s. (Wild). Prize, 5s., Mr. Henry Clapham, Aireworth, near Keighley, Yorkshire; 3l. 5s. Prize, 5s., Mr. Charles Sturge, Birmingham; 1l. 10s. (Lilac).

Class XLV.—TURKEYS.—(Cock and Two Hens.)—First Prize, 1l. 1s., and Extra Medal, Mr. Edward Woollett Wilnot, Hulme Walfield, Cheshire; 10l. 10s. (Wild American). Second Prize, 10s., the Right Hon. the Earl Howe, Gosport, Leicestershire; 1l. 10s. (Norfolk). Third Prize, 5s., James Taylor, Esq., Moseley Hall, near Birmingham; 20l. Extra Second Prize, 10s., the Right Hon. Lord Hatherton, Teddesley Park; 20l. (Cumberland). Extra Second Prize, 10s., Mr. John Benjamin Twitchell, Welby, Northamptonshire; 5l. (Common). Extra Second Prize, 10s., Mr. John Benjamin Twitchell, Welby, Northamptonshire; 5l. (Common). Extra Second Prize, 10s., Mr. William Udall, Birmingham; 5l. (White). Extra Second Prize, 10s., Mr. Edward Mander, Park Farm, Beaudest, Henley-in-Arden; 2l. 15s.

Class XLVI.—GUINNA FOWL.—First Prize, 10s., the Right Hon. Lady Calthorpe, Perry Hall, Staffordshire; 1l. 10s. Second Prize, 5s., James Arthur Taylor, Esq., Moor Hill, Stourport, Worcestershire; 4l. 4s. (Dark). Extra Second Prize, 5s., Mr. Henry Thomas Mowley, Cold

Ashby, Northamptonshire; 7s. 6d. (Light Grey). Extra Second Prize, 5s., Mr. Edward A. Langard, Snow Hill, Birmingham; 25l. (White).

Extra Class.—ORNAMENTAL POULTRY, OR WATER FOWL.—(Pea Fowl.)—Prize, 1l., Mr. Charles Sturge, Birmingham; cock, 3l., hen, 6l. (Japan). Prize, 10s., Mr. Charles Sturge, Birmingham; 10l. (White). Prize, 10s., Mr. William Peakman, Great Lister Street, Birmingham; 2l. 10s. Prize, 5s., Mr. Charles Sturge, Birmingham; 5l. (Pied or Mottled).

GOLDEN PHEASANT.—Prize, 10s., Mr. George C. Adkins, Carpenter Road, Edgbaston; 10l. 10s. (Chinese). Prize, 5s., Mr. John Shackel, Blenheim House, Small Heath, near Birmingham; 8l.

SILVER PHEASANT.—Prize, 10s., Mr. George C. Adkins, Carpenter Road, Edgbaston; 10l. 10s. Prize, 5s., Mr. John Shackel, Blenheim House, Small Heath, near Birmingham; 8l.

HYBRID.—Prize, 1l., the Right Hon. Earl Beauchamp, Madresfield Court, Worcestershire; 10l. (cross between Golden and Common Pheasant). Prize, 5s., the Right Hon. Lord Guernsey, the Bury, near Leamington; 30l. (cross between Pheasant and Common Fowl). Prize, 5s., the Right Hon. Lord Wenlock, Eserick Park, near York; 10l. 10s. (cross between Wild Duck and Pintail).

EGGS.—Prize, 5s., Mr. John Shackel, Blenheim House, Small Heath, near Birmingham. (Six Duck's Eggs, laid in September last.)

MANAGEMENT OF GESE.

OBSERVING in your periodical of December 11, a question put as to the best manner of fattening geese, and also how to distinguish a goose from a gander, I take the liberty of giving you my experience on the subject, living in the neighbourhood of a common, where a great quantity of them are kept by the cottagers, who have the right of depasturage thereon, and having kept them myself for a number of years. The principal thing is, to get a good early kind, for on that depends all the future success and profit. What I mean by an early sort is, those who begin to lay about old Candlemas day—this is the first and best property of a brood goose. The next is to choose one not too large, nor too small, short-legged, stout, compact body, and of a prolific parentage.

The gander ought also to be of an early breed, good size, and of a courageous disposition, in order to be able to protect his charge when required. A gander may be easily distinguished from a goose by the length of his neck, which is always longer in a male than a female, and also by his general appearance, which is always larger and more masculine; but the surest way to distinguish, is to take one by the tip of the wing and let it have its full swing, which causes it to shout out, when the difference of tone is as easily distinguishable as in the human voice, the female's being a good deal shriller.

With regard to an early breed, it has been experienced in this neighbourhood, that a cross between the Cape breed, which are very early, and our native domestic kind, has succeeded in producing early ones; but as the former sort are a good deal less than our breed, it of course depreciated their value in the market; but it has been found here, that the third and fourth cross has succeeded admirably—hence, many of our best kinds in this neighbourhood are of that breed, and are in great request as breeders, and also for fattening purposes.

The cottager who has the privilege of a common to summer his geese on, and who has, say, five brood ones to commence laying at the above time, or even a fortnight later, provided they are of an approved breed, coupled with a good gander, may safely "count his chickens," or rather his goslings, "before they are hatched," to the number of fifty; for it is considered a bad goose here, and not worth keeping, which does not lay a dozen eggs at least—fourteen being considered an average number; but they must be well fed during the winter to do so, and without good feeding at that time, little profit will be derived. Two bushels of oats per goose is considered a sufficiency, except it be a severe winter, when it ought to be increased, such feeding commencing about the middle of October, the time of leaving the common; and the food must be varied by a mash, at intervals of a week, made of bran or sharps, mixed with a little oatmeal and potato peelings, which change of diet, it is said, makes them lay sooner and better, which is no doubt the case.

In this district, among the cottagers, the nests of the brood geese are placed in the house, generally in the dairy; when in the latter, they are boxed in under the shelves. The nests are usually made of plaited straw, something in the shape and make of the old-fashioned bee-hives, but of course a good deal larger, about two feet in diameter, and a

foot deep; care should be taken that they are not placed in a damp situation. It is soon known when they intend beginning to lay, as they cannot be kept out of the house at that time, often stalking in three or four days before they commence laying, thus giving warning to their owners to prepare their nests for them.

The nests ought to be kept in one situation from year to year, for if shifted, the geese do not settle on them for days, and some will not even lay in a nest which it has not occupied the foregoing year, without great compulsion; therefore, each goose ought always to have its old nest again. The usual time of laying a dozen eggs, takes about twenty or twenty-two days, of course some lay double that quantity of eggs, and take double the time in laying them. It is easily known within a day or two, before they discontinue laying, by the quantity of down and feathers left in the nest, and also by the unwillingness to leave it, which is a provision made by Nature which cannot be misunderstood.

The cottager ought always to strive to have all his brood geese to hatch at once, which is a great desideratum, thereby saving an immense deal of future trouble and anxiety, if they are to be sent to a common. To accomplish this, the earliest ones done laying may be kept back from sitting on their eggs, a week or more, if necessary, and the latest may be advanced a little, by allowing them to have their eggs before they are quite done laying; to know when, has been already explained. I have frequently known a goose having been given her eggs, and afterwards lay two, and even three more, and yet at hatching-time there has been little or no difference in the time of hatching the whole of the eggs; for it is a well-known fact among poultry-keepers, that the last laid egg is the first in hatching. A dozen eggs are considered enough for one goose to sit on, though I have known a large one bring forth fourteen, and even fifteen goslings, but I think twelve quite sufficient. During the time of incubation, the goose should be well fed, at least once a-day, having her food placed close to her nest, which prevents her leaving it so often, which they usually do at the commencement of sitting; the consequence of so leaving is, that the eggs get addled, for if not looked after, they will sometimes stay an hour or more from them, and as it is the most critical time, great attention should be paid to them. Water also should be placed near them, so that they may partake of it without removing from their nests.

At the end of twenty-eight days the eggs ought to be looked at, and the addled ones, if any, be taken out, as they are apt at that time to burst, from the heat and confined gas within them. The addled ones are easily distinguished from the others, by feeling colder and lighter, and by their sound if shaken in the hand. A great part of the down must also be taken out, as the young ones are apt to get smothered among it, especially if it be the first brood of the mother. At the end of the twenty-eight days, you will probably find some of the eggs "chipped," and some persons are very officious in "assisting nature," as they choose to call it, by breaking pieces of shell off, and forcing the young ones out before their time. This is a bad system, and ought not to be done, except in cases, which sometimes occur, when the shell gets hardened and glued to the goslings, and then it ought to be cautiously removed, without producing bleeding. Nature may be assisted a little by giving the goslings in this state a few drops of warm milk from the tip of the finger, which it will readily take, which strengthens it greatly, and causes it to leave the shell sooner. The young ones should not be taken out-of-doors until forty-eight hours at least after leaving the shell. In the mean time they may be once or twice fed on oatmeal mixed with milk made to the consistency of crumbs of bread, which they will readily eat. Water mixed with a little milk may also be placed before them in a shallow dish, which they will soon find and drink of. The old one should be kept in the nest during this time. If it can be avoided, they ought not to be taken out-of-doors the first time, without it be favourable weather, sunshine having a strengthening effect on them; but rain on the contrary, ought, if possible, to be guarded against for the first few days, as few recover from a thorough drenching of rain at this period of their lives.—"LEBIO."

(To be continued.)

WINTERING LETTUCES.

At this season of the year it is the complaint of many cottagers, that their Lettuce plants, planted in Autumn, to stand the winter, die off, and they ascribe it to the unfavourable weather, and a great variety of causes. I have practised the following very simple method, whereby all the plants have been preserved throughout the winter. I can promise that it will answer on common, light garden ground, but I do not say it will do on stiff or heavy soils. After the ground has been well prepared by turning it over, I tread it evenly over the surface, so as to make it quite firm, and then insert the plants firmly in the soil. I have observed, that when this has been done, hardly a plant has been lost, while on the other hand, when the ground has not been trod, many of the plants have perished.—W. MOORE, *Chelsea*.

TO CORRESPONDENTS.

COCHIN-CHINA FOWLS.—In reply to the queries of H. B. in THE COTTAGE GARDENER, page 203 of the present volume, on this very interesting and, as he terms it, "highly fashionable subject," I would, in the first place, say, that Mr. Punchard did not dispose of either chickens or eggs prior to the Birmingham Exhibition of 1850; but since that time, he has sent fowls to all parts of the kingdom (Cornwall included); he has this week sent some into Devonshire, and to Cheshire, and a short time since he supplied some to one of Prince Albert's farms at Windsor. Mr. Punchard has not parted with any eggs (except a few to friends), before they have undergone a process which prevents their producing chickens; the surplus ones have been sent to the shops, and in their known unproductive state, have sold for cooking, &c., at the general price of eggs in the neighbourhood. Mr. Punchard has kindly sent me a copy of his egg-account, from his manager's book, from the 1st of January to the 26th December, which may be interesting to H. B. The total number is 5865, and 2340 of this number have been laid since the 1st of September, at which time several of the early-hatched pullets commenced laying. His stock of fowls is diminishing daily by sales made; but even now, he can show nearly 400 *fowls* and *chickens*. Mr. Punchard did not carry all the prizes at Birmingham, in 1850, but took a prize for every pen he exhibited, as also did Mr. Sturgeon. By referring to the prize list of 1850, it will be seen, that in Class 3, there were nineteen competing pens of Cochin-China fowls; in Class 14, 27 *pens*; and in Class 15, 17 *pens*. "The weight of the cocks, and the fecundity of the hens," as H. B. remarks, is truly astonishing, for the hens commenced laying three weeks after having produced chickens, and then will lay 29 eggs in 30 days; my *pullets*, *even*, have done this. I must not forget to inform H. B., that the 500 chickens reared by Mr. Punchard, were not all hatched by the 35 hens, but some of them by his cottager's common hens, he supplying the eggs, and taking the chickens at the age of eight or nine weeks, paying them a certain sum per head, per week; this was done to the extent of about one-third of the 500.—J. H. PAYNE.

COCHIN-CHINA FOWLS.—H. B., in your number of THE COTTAGE GARDENER for Dec. 25th, has put forward a series of questions regarding these fowls, which have doubtless suggested themselves to several of your subscribers on reading Mr. Payne's communication respecting Mr. Punchard's stock. I myself was much surprised on first reading it; but much of that surprise has abated on weighing some of my own cockerels, and on referring to my egg-account. I commenced this year with a pair of young fowls, whose grand-parents were imported birds; their appearance entirely accords with the description given in your number for July 31st, 1851. The pullet began to lay on Jan. 14th; on March 3rd she hatched 16 chickens, and again began laying when these were five weeks old. On May 27th, she brought out another fine brood, and recommenced laying in about a month. On August 15th, she hatched a third brood; and in six weeks laid again. In October she wished to sit a fourth time, but being so late in the season, I prevented her. On the 13th inst. (Dec.), she again began to lay, and is now still producing her daily egg, having laid this year 104 eggs. Of the March brood, some of the pullets began to lay more than a month ago, and some of the cockerels weigh about 9½ lbs.; cockerels of the May brood about 6 lbs. As regards the hardy nature of the breed, I need say no more than that I have not lost a single chick from illness. Many imagined that they had the pure breed, but, on seeing mine, were quickly undeceived. Mr. Punchard's, however, and the prize birds at Birmingham, appear, from your account, to be a still finer variety. I have a couple of fine cockerels to part with at a moderate rate.—BROUGHTON KINGDOM, *Exeter*.

CANTUA DEPENDENS (J. W. F.).—We cannot write answers by post, and when they are delayed it is owing to the difficulty of procuring the information desired. We have said last October that *Cantua dependens* was a half-hardy frame plant, and your house at 60° was more than 30° too much for it. We have also said of it that it would not stand much exposure to the sun when under glass, so there was no want of information respecting it—but we have all to learn more about it. Your plant was infested badly with the red spider, otherwise a sudden temperature of 60° would not tell against it, at this season, in less time than a month or so. Place one of the bottom leaves under a magnifier now, and you will see whole herds moving about; they are red spiders, against which we constantly keep the proper remedy before our readers, even devoting whole chapters to this one subject. The front part of a cold frame is the proper place for wintering young plants of *Cantua dependens*, or, in other words, abundance of damp air, freedom from frost, with a full exposure to light, but not to the direct rays of the sun. It will be as cheap as cabbage plants.

CLIMBING ROSES (W. R. N. S.).—Your plan will answer perfectly. You will see that Roses trained with single stems were recommended last

week by Mr. Beaton, and here is the way to do it. Keep the leading shoot constantly nailed up to the wall; do not allow any suckers, and cut off none of the side shoots the first year, but do not let them extend beyond six inches from the main stem. To do this in the best manner, there should not be a knife, or any other cutting instrument, within your reach the whole season; the finger and thumb, with a hammer now and then to drive in a nail, are all you need. *Felicite perpetuelle* is one of the best Roses for your purpose.

QUARRLSOME POULTRY (D. H.).—There is no way of preventing the two valuable cocks from fighting, except either by confining one, or by letting them fight it out, administering during the combat a few buffets with a glove, or other harmless substance, to the losing party. This will only answer where the poultry-walk affords sufficient range for the vanquished bird to retire and leave the victor to be "cock of the walk." In a confined space the battle might be renewed till one was disabled or dead.—D.

WHITE COCHIN-CHINAS (Ibid.).—The first White Cochin-Chinas exhibited, were at Birmingham, in 1850, by Mr. Edmund Herbert, of Powick, Worcestershire, who had them from the Dean of Worcester, who had them from a gentleman who imported them. On this pair, a price of £5 was put, as prohibitory. They were immediately bought, and the buyer was soon offered £7 for them, which he refused. Mr. Herbert's birds were sold at the last Birmingham Show, for £10 the pair. For eggs and chickens of the coming season, application may be made to Mr. R. H. Bowman, Rosevale, Pensance. Their weight is much the same as the others. Buff and cinnamon are the most approved among the coloured birds. The question as to weights was anticipated last week. It is not easy to state the greatest attainable by future specimens. There has not been what can be called a poultry show in London, of late years, though it seems now that one will be established, either by the Smithfield Club, or other parties.—D.

EARLY POTATO (J. B.—I. of Man).—You ask for "the best serviceable early potato," and if earliness is your chief object, there is none equal to the *Walnut-leaved Kidney*. If you wish for an early-ripening excellent sort for your main crop, we know of none so good as *Ryall's Flour Ball*, and next to that *Martin's Seedling* and *Soden's Early Oxford*.

DISEASED APPLES (A Young Gardener).—You, like many others, do not appreciate that vegetable diseases and their causes are among the most difficult subjects brought to the gardener's attention. You sent us an apple stained with brown spots, and you tell us it is the produce of "an old tree on loose and gravelly soil." From these facts you ask us to state the cause and the remedy! Is the old tree vigorous? how is it pruned? is the soil well-drained? what is the subsoil? are only a few queries which require answering before an opinion can be formed as to the cause of the disease. However, you cannot be far wrong, as the tree is old, if you manure the ground with well-decayed stable manure over the roots of the tree, just pointing in the manure over the space between two and five feet from the stem all round. If the subsoil is wet, dig a trench on one side, and then cut away underneath the tree, and sever any tap-roots you may find.

KILKENNY ANEMONE.—A correspondent (B. B.) will be obliged by S. N., who mentioned this flower in our 167th number, stating where seed of it can be obtained.

ITALIAN RYE GRASS (A Subscriber).—We have no experience in sowing this among wheat in the spring, for the purpose of obtaining feed late in summer. With your unlimited supply of liquid-manure, we think you may grow *Lucerne* in your orchard without injury to the trees. *Peat charcoal* may be obtained of the manure merchants in Liverpool and London. You scarcely need it, as you have such an abundance of liquid-manure, dissolved bones, &c.

MISLETOE CULTURE (C. I. P.).—This is not propagated by plants, but by seed. Get some of the ripe berries; cut the bark on the *underside* of an apple-tree branch in the shape of a V, raise the tongue of bark without breaking it, put 2 seed of the Mistletoe under the tongue, but do not press it down hard. It may be done equally well by merely cutting a nick in the bark, and putting in a seed.

SALT (Ibid.).—This is a very excellent manure for the kitchen-garden. Some plants, such as Asparagus, Sea-kale, and Beet-root, never are so productive without salt as if the soil is manured with it.

SPADE CULTURE (A Young Farmer).—You shall be attended to in our allotment paper.

CROPPING (A Country Schoolmaster).—With every desire to render you service, it is impossible to do so in full for want of data. You should have stated what you intend to do with your produce? What cattle, if any? Manure, &c.? As it is, we can do no more than point to rotations; and here, why did you not number your squares for sure reference? Get your ground into larger divisions, say three; the three longitudinal lines in your sketch may represent divisions. Classify in a broad way your crops; distinguish them by such names as improvers, scourgers, intermediates, deepeners, &c. You will then begin to know what you are about. Without some such generalisation, things will in a year or two be all in a muddle. As illustrations:—*Potatoes* are always improvers, *Cabbages* scourgers, and *Wheat* the same, *Parsnips* and *Carrots* deepeners. What can have suggested such odd combinations as Peas and Carrots, Wheat and Potatoes alternately? Pray combine with a regard to the habits of the crops. A good system of mixed cropping should combine crops which, if not absolutely advantageous to each other, should, at least, be of a neutral character. Perhaps you will see something in our next two allotment papers that will fit your case. By all means plant some *Cow Cabbage* in the first week of February, if the plants were sown on poor soil in the middle of August. If they are much earlier and gross, they may "bolt."

VINE GRAFTING (W. F. E.).—Nothing is simpler than grafting vines. It is best to do this when the stock has begun to grow, the scion having been retarded, so as to be just on the eve of swelling. The grafts are generally "whipped" on as apples and pears, and a thick coating of moss may surround each.

GROWING DAHLIAS (B. W.).—You have indeed "had very bad success

with your Dahlias," and if you have done exactly as you say, it is difficult to account for your failure. If you have the means, why did you not put in cuttings as soon as you could get them. Put them in small pots when rooted, and allow them to remain in the pot till the following spring. This is the best way of keeping a stock of Dahlias. You did wrong in not taking the tubers up immediately, and drying them quickly, for by the consequences it appears they must have been very full of sap, which has caused them to rot so soon. Are you quite sure they are all dead. You say they were put in a tub covered with straw. Where did the tub stand, exposed to the weather? Then they were put in a box in the kitchen, and there they died. We are afraid it was the wet and frost that finished them. Agreeably to your request, we have selected eighteen good and cheap kinds, and twelve fancy varieties (all one shilling each) which our contributor, Mr. Appleby, will select for you, good plants in pots now, if you write to him, and we hope you will be more successful next season.

Eighteen Show Dahlias.—Antagonist, Standard of Perfection, Capt. Warner, Nonpareil, Beeching, Cleopatra, Empress of the Whites, Berryer, Scarlet Gem, Miss Vyse, Shylcock, Yellow Standard, Admiral Stopford, Mrs. Seldon, Sir F. Bathurst, Duke of Cambridge, Mr. Seldon. **Twelve Fancy Dahlias.**—Ben Mara, Gasparina, Empereur de Maroc, Ludwig, Florence Dombey, General Cavaignac, Hermine, Roi de Points, Mr. G. Clayton, Picotee, Triomphe de Magdeburgh, Mrs. Shaw Lefevre.

HYACINTHS (One who has a Corner in her Father's Garden).—You have some hyacinths in pots, which you wish to take out and put in glasses. You may do so, but the change requires care. Turn them out of the pots, and place them, one by one, over head in water; the soil will soon become soft, and will easily part from the roots. Be careful not to break or injure them. Wash them clean from the soil, and then gradually work them into the glasses. Fill these with soft clean water, and set them in a place where no frost or sun can reach them. Here they may remain for a week or ten days; then change the water, and, at the same time, wash the roots in clean water, to cleanse off a kind of slime that will be upon them. Refill the glasses with water, and keep filling them up as the water evaporates. As the growth advances, you may give them more light. Unless the glasses become foul and green, you need not disturb the roots by turning them out again; for every time they are disturbed, some roots are almost certain to be broken, or otherwise injured.

CHEAP HOTHOUSE (Economical).—We approve of the air being given in front, by openings in the front wall. There is no mention of air at back, that will require also either sliding wooden ventilators, or made to go up and down on hinges. With the rafters, or rather the sash-bars, three inches by one-and-three-quarters, it will not do to slide any of the glass. We should think these sash-bars sufficiently strong, 18 inches apart, and glazed with 16 oz. glass that length, by one foot in breadth, in a moderately-sized house, and strong enough for the house referred to, forty yards long, if there was never such a thing as broken glass, and a storm of wind; but with some squares of broken glass, or the flying open of a door, we should be afraid for the roof in a great wind, or during a heavy fall of snow. If there were several divisions in the house, the case would be different, as they would all serve as so many ties. Without these divisions, we should like to have several strong rafters, to bind the house more securely together; and if the place was at all exposed, we would, in addition, have a metal rod screwed to these large rafters, and all the intermediate bars along the middle of the roof. We should like to have at least three of these stronger rafters, of the usual size, besides the ends. It might be all quite safe without it, but we would not wish to venture it in an exposed place. We fear that glass 18 inches by 12 inches, will not be easily procured at 24d. per foot, if it is at all good.

POTATOES (K.).—Your newly-broken-up meadow land will require no manure of any kind for potatoes. Plant immediately the weather and soil are dry enough. Dig the soil, and plant on the surface, as your soil is heavy, and throw the earth in a ridge six inches deep over the sets. You will see the kinds we recommend in an answer to another correspondent. We will tell you next week what to plant against your poultry-yard walls.

PRONUNCIATION OF NAMES (C. T.).—We are glad that *The Cottage Gardeners' Dictionary* aids you, but we cannot assist you more. For the pronunciation of the French names of Roses, you will obtain more information by five minutes of enquiry in conversation with a Frenchman, than we could give you in five pages of writing.

PIG-FEEDING (A Young Pig-feeder).—The letter of W. H. W., his answer to another enquirer in our last week's paper, and a letter we shall publish next week, will answer all your queries. You must have a bad breed of pigs, and you feed the young ones on food too sloppy, and with too little nourishment in it. Buy *Richardson's* shilling book on *The Pig*. It will answer the multitude of questions you ask at the end of your note. If we received your inquiry about wheat and beans, we answered it at the time, but we do not remember. We will endeavour to make out what weed you mean. Why did you not send a specimen of it?

PUMPKIN (R. P.).—Yours is probably the *Mammoth*; but they cross so freely that the varieties are countless.

EXPLANATION OF TERMS (S. R. F.).—It is quite impossible for us to explain every botanical term we use. Buy *Henfrey's* beautiful little volume *Illustrations of Botany*. You may *die nets* very well in a strong liquor formed by boiling either *Birch* or *Oak bark* in water. Do not use corrosive sublimate.

ANEMONE BLOOMING (J. Betworth).—This only lasts through April, May, and June.

MIKANIA GUACO (J. Weeks and Co.).—You will find a description of this stove evergreen twiner in *The Cottage Gardeners' Dictionary*. An antidote against the bite of poisonous snakes is said to be prepared from it in South America. Can any of our readers give some information on this point?

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WEEKLY CALENDAR.

M. D.	JANUARY 22—28, 1853.	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
		Barometer.	Thermo.	Wind.	Rain in In.						
23 T	Vincent.	30.144—30.808	46—32	S.W.	—	55 a. 7	28 a. 4	5 a. 43	1	11 46	23
23 F	Winter Aconite flowers.	30.328—30.310	47—33	W.	—	54	50	6 50	2	12 2	23
24 S	Chaffinch sings.	30.310—30.045	34—35	S.W.	—	53	32	7 59	3	12 17	24
25 S	SUN'S SUNDAY AFTER EPIPHANY. CONV.	30.046—30.829	42—30	S.	—	52	33	9 4	4	12 32	25
26 M	[OF ST. PAUL.]	30.829—30.690	43—33	S.E.	02	50	35	10 9	5	12 45	26
27 Tu	Field Speedwell flowers.	30.690—30.868	48—37	S.W.	02	49	37	11 15	6	12 58	27
28 W	White Wagtail chirps.	30.789—30.691	49—39	S.W.	12	48	39	morn.	7	13 10	28

IN our last number we concluded our biography of COLUMELLA, by observing that the subject of Roman horticulture was not exhausted, even only so far as connected with his writings, and if we were to embrace in our sketch an outline of all that is known to us of the gardening practice of that great nation, it would extend over many pages. This is not our present purpose, but we will confine our notice to a few facts serving to remove from the minds of our readers the too general impression, that the gardening of the Romans was "the gardening of barbarians."

In the first ages after the foundation of the city, the farms, which resembled our market gardens, were cultivated by the chief men with their own hands, as must occur in every new colony, and hence the Pico, the Fabii, the Cicero, the Lentuli, and other celebrated families derived their patronymics from ancestors distinguished for the successful cultivation of the culinary vegetables intimated by their respective names. *Pisum*, a Pea; *Faba*, a Bean; *Cicer*, a Chick Pea; and *Lentulus*, a Lentil.

Of the kitchen-garden, as might be expected, we have less information in the writings that have survived to us than of any of the other horticultural departments. Literature was confined to the higher classes, these would not condescend to record the rules for planting cabbages, and there were none more practical. and, therefore, more useful authors in those days when writing materials were costly, and printing unknown. Cato has glanced over the subject, and Varro, Columella, and Palladius have done no more. From the little information they do afford to us, and from casual lights that break in upon us from the writings of other authors, we learn enough to assure us that their culinary vegetables were excellently, and than their fruits perhaps better cultivated. Turnips, Coleworts, Radishes, Basil, Beans, Cabbages, Garlic, and Asparagus are mentioned by Cato. Endive, Parsley, Cucumbers, Lettuces, Beets, Peas, Kidney Beans, Carrots, Parsnips, Malloes, Onions, Mustard, Fennel, and Mushrooms, are mentioned by the later writers, Columella, Varro, Pliny, Virgil, and Martial. *Asparagus* is one of the very few plants of which we have the full detail of the mode of culture pursued by the Romans; and if we are justified in considering it a fair standard by which we may estimate their proficiency in the art, we cannot but conclude that it was decidedly excellent. The directions which are given by Cato, are an epitome of those which occur in Abercrombie, Miller, or any other standard work on horticulture—they are as follows: "You must well work a spot," says Cato, "that is moist, or which has richness and depth of soil. Make the beds so that you may be able to clean and weed them on each side; let there be a distance of half-a-foot between the plants. Set in the seed, two or three in a place, in a straight line; cover with mould; then scatter some compost over the beds. At the Vernal Equinox, when the plants come up, weed often, and take care that the *Asparagus* is not plucked up with the weeds. The year you plant them, cover them with straw during the winter, that they may not be killed. In the beginning of the spring after, dress and weed them. The third year after you have sown them burn the haulm in the beginning of the spring. Do not weed them before the plants come up, that you may not hurt the stools. The third or fourth year, you may pluck them close by the root; if you break them off they yield side shoots, and some will die. You may take them until they run to seed. The seed is ripe in autumn. When you have gathered the seed, burn the haulm, and when the plants begin to shoot, weed and manure. After eight or nine years when the beds are old, lay out a spot, work and manure it well, then make drills where you

may plant some roots; set them well apart that you may dig between them. Take care that they may not be injured. Carry as much sheep's dung as you can on the beds, it is best for this purpose; other manures produce weeds."

The assiduity of the Romans in collecting new species and varieties of fruit may be gathered from the writings of the elder Pliny, who lived A. D. 23—79. There were then cultivated in the vicinity of Rome, nearly all the fruits with which we were acquainted at the commencement of the present century, the chief exceptions being the Orange and Pine Apple, the first of which, however, they became possessed of in the 4th century. Very few of their cultivated fruits were indigenous, but were introduced at the expense of no little money and trouble from distant and different climes. The Fig and Almond were brought from Syria; the Citron from Media; the Apricot from Epirus or Armenia; the Pomegranate from Africa; Apples, Pears, and Plums, from Armenia, Numidia, Greece, &c.; the Peach from Persia; and Cherries from Cerasus in Pontus, by Lucullus, about 73 years B.C. Strawberries, Raspberries, and others mentioned before by Cato, appear to have been natural products. The Gooseberry and Currant are found wild in the hills of Northern Italy. As the species were increased in number, so were the varieties. Pliny mentions 22 Apples, one without kernels; 8 Cherries; 6 Chestnuts; Figs, many black and white, large and small; Medlars, large and small; large and small Black Mulberries; Filberts and Hazel-nuts; 36 Pears; Plums "ingens turba," black, white, and parti-coloured; 3 Quinces; 3 Services; Grapes numerous; 2 Walnuts; Almonds, bitter and sweet.

There is evidence to show that the Romans were acquainted with the more difficult practices of preserving tropical plants under glass, and of forcing those bearing fruit into production at unnatural seasons. M. Dureau de la Malle, a member of the French Institute, has stated that an inscription found at Rome, proves that the Emperor Domitian, who died, A.D., 96, had foreign plants cultivated in a hothouse, at his palace, on the Palatine Hill. We have never seen a copy of this inscription, but we know quotations to the same effect, from Martial and Seneca, and we also know that Columella thus details the mode of forcing Cucumbers:—"Any person that is desirous to have the fruit of the Cucumber earlier ripe than ordinary, let him shut up well-dunged earth in a case, or osier-basket, and sow the seed therein, and give it moderate moisture. Then, when the seeds are sprung up, let him place them in the open air, in mild and warm sunny days, hard by the house, that they may be protected from every blast of wind. But in cold and stormy weather, let him bring them back again into the house; and let him constantly do this till the vernal Equinox be past: afterwards let him put down the whole basket into the ground; for thus he shall have early fruit. Also, if it be worth the while, little wheels may be put under larger vases, that they may be brought out with less labour, and harboured again in the house: but, notwithstanding, they ought to be covered with glasses (*specularibus*), that in cold weather also, when the days are clear, they may be safely brought forth to the sun. By this method Tiberius Cæsar was provided with Cucumbers almost the whole year."

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 44.1° and 32.6° respectively. The greatest heat, 56°, occurred on the 28th in 1843; and the lowest cold, 17°, on the 27th in 1827. During the period 81 days were fine, and on 94 rain fell.

THE pleasant task again occurs to us of noticing some of the new publications which have been placed upon our table for our opinion. The task is pleasant, because very few require condemnation, whilst the majority are demonstrative of the high position, yet still onward progress, of British gardening.

Often are we asked for information as to the best mode of cultivating a garden for the profitable sale of its produce, and at all times we have given the best advice within our power. We shall always be willing to yield similar aid, yet we must, at the same time, recommend to every one wishing so to cultivate a garden, whether in the country or elsewhere, to purchase, as a standard source of information, Cuthill's *Market Gardening round London*. Its price is only eighteen-pence, and it contains just the kind of know-

ledge beginners require. As an example, we quote the following relative to *Rhubarb*:—

"Mr. Joseph Myatt, of Deptford, who is celebrated for his fine rhubarb, was the first to cultivate it on a large scale. It is now nearly forty years since he first sent his two sons to the Borough Market with five bunches, of which they could only sell three. Next time they went they took ten bunches with them, which were all sold. Mr. Myatt could even then see that rhubarb would, in time, become a public favourite, and the result has proved the correctness of his views, for it is now generally used both by rich and poor; it is no longer called 'physic,' as it was wont to be in bygone days. Rhubarb will grow in almost any soil, provided it is rich; but light land, well manured, will always produce a better flavoured stalk than a stiff, retentive clay. We have had a great deal of rain this winter, and rhubarb in consequence is not near so well flavoured as in a dry and rather frosty season; the stalks are full of watery juice, which the roots have taken up; and in some places the tops of the leaves are beginning to rot amongst the straw. This has led some market gardeners to adopt means of keeping the roots

dry. Mr. Mitchell, of Enfield, has grown his early rhubarb this winter in the following manner. He lifted the roots, packed them, with a little mould between them, on the floors of long sheds, and covered the crowns two feet with tree leaves. These produced sufficient heat to bring it forward gently; and I never saw better or finer rhubarb at Christmas. The usual plan of forcing it about London consists in digging long pits to the depth of two to three feet, introducing eighteen inches of hot dung, and then packing the roots closely together in a little mould, covering the crowns with hoops or with six inches of straw; then hurdles or mats, and finishing with six or eight inches of straw, the amount of the latter depending on the severity of the winter. In this way strong well-flavoured stalks are produced, provided the weather is dry. The colour is bright red, and the leaf is always very small. Many prefer forced rhubarb, on account of its tender fibre. No skinning is required, and it is much less acid than that from the natural ground. Those who desire this kind of rhubarb, therefore, might easily obtain it by placing about a barrowful of straw over each crown. This covering would be cheap, and, besides bringing it on a little earlier, it would help to manure the ground and keep off frost. Rhubarb growing out of doors is so simple that little can be said respecting it. The ground being heavily manured, a plant is taken up and divided into as many eyes or buds as it possesses. These are planted four feet apart, and by the autumn they will have produced roots from 6 lbs. to 10 lbs. in weight. The oldest roots are generally taken up for forcing; and by always having a good rotation, the grower has the power of continually changing the ground, and thus obtaining a heavier crop. The forced plants will furnish eyes for a continual succession, without growing plants for the purpose, and the eyes may be divided and planted again for a main crop. I have practised this plan on a small scale many years ago."

"The following are four first-rate sorts: Mitchell's Early Albert, Randall's Early Prolific (this is as yet little known, but is a greater bearer than the Linneus; it is high coloured and well-flavoured), Myatt's Linneus is next in earliness, and Myatt's Victoria is the latest."

Of Thomson's *Dictionary of Domestic Medicine* we will speak decidedly when we have a copy of the work complete. At present it promises well, but we have, in books thus published, so often been deceived by first appearances, that we decline giving an opinion until we have the work entire.

Of the cheaper successor to "The Gardeners' Magazine of Botany," *The Garden Companion and Florist's Guide*, we can give no higher praise, for it is the highest, than to say that whilst its illustrations are as beautiful as those of its predecessor, the contents are superior, because more practical. As a specimen we will extract the following from an excellent paper on *Pomponé Chrysanthemums* :—

"As the Rose is the admitted queen of the summer, and the Dahlia the autumn's king, so may the Chrysanthemum be ranked as the king of winter; for, coming into bloom just at the season when the autumn monarch succumbs to the terrors of the ice king, it may be said to be the floral connecting link between the old and the new year, like an oasis in the desert, or a star to cheer the florist when all around is drear and dark. Unlike most other plants, the Chrysanthemum seems to delight in smoke-pent cities, for within a stone's throw of Fleet Street, in the Temple Gardens, abutting upon the Middlesex side of the river Thames, may be seen every autumn a display of this flower, which, for effect, rivals the American Nurseries of Bagshot, or the grand display of these plants at Chiswick and the Regent's Park. Our attention was first directed to these gardens one thick November morning, when, the fog being of true London character, we landed at Paul's Wharf, and wended our way westward through Thames Street, Whitefriars, and the Temple, where, through the aid of a sudden gleam of sunshine, we descried, amid the yellow mist, a grand display of this splendid flower. At the first sight we

thought they must have been transplanted from some suburban nursery or garden, but a closer inspection satisfied us that they were the veritable productions of the place. In Lincoln's Inn Fields, also, the Chrysanthemum flourishes, and would do so more fully if more attention was devoted to its management; and in most of the Squares a few straggling plants may be seen, amply testifying, that, if properly managed, they would make London gay even when the country is cheerless, for they are less likely to be injured by frost in London than in the suburbs.

"With these facts before us, it is in the nature of things that Chrysanthemums should be rising in public favour, and the gorgeous specimens which have been produced not only of plants, but of cut flowers also, at the Stoke Newington and other exhibitions, prove that the Chrysanthemum, as a Florists' Flower, will become as popular as the Rose, the Dahlia, and the Hollyhock.

"Among the novelties lately brought into notice are the varieties figured upon the annexed plate, all of which belong to the class of Pompones, or small varieties which have originated from the Chusan Daisy, a variety introduced by Mr. Fortune, from China, and the ordinary kinds. These varieties are specially remarkable to the hybridizer as having taken on, in crossing, the varied colours of the large kinds without increasing in size, for though some of them are larger than the Chusan Daisy, the majority scarcely exceed it in size, and some of them are even smaller. In form, also, several of the varieties are nearly perfect, while one of them, called La Nain Bébé, when the flowers are fresh, has the scent of Violets! The plants in habit are mostly compact and shrubby, but some of them are a little inclined to become tall. Most of the varieties flower very freely, and therefore are likely to become very useful plants for bedding out in the flower-garden for a winter's display; hence we shall address ourselves to their treatment for that purpose, in the present notice, and leave the subject of their cultivation for exhibition till a more suitable time.

"Premising, then, that you have supplied yourself with a stock of plants of each of the varieties which you are desirous of getting a quantity of for flower-garden purposes, place them at once in a warm greenhouse or pit, at a temperature of 45° to 55°, and as fast as they produce cuttings of sufficient length, take them off, and strike them in the propagating pit, or a close frame. Continue that practice until you have a sufficient number of each kind, and pot the cuttings off as they get well rooted; but bring them up hardy, and keep them as dwarf as possible. The young plants, after they are established in small pots, may be protected under temporary frames, until they are planted out in June. Having provided a sufficient quantity of plants, the next step will be to prepare the ground, and this should be rather strong and well enriched, so that the plants may be taken up with good balls. Now, if large specimens are wanted, averaging say eighteen inches in height, and the same in diameter, the plants must be put out in rows three feet apart, the plants standing two feet apart in the row; but, if smaller plants will suffice, then you may take the cuttings in June, and after rooting them in a close frame, plant them out direct from the cutting pots, taking advantage of dull showery weather, and just sticking them in with a dibble, as you would a lot of cabbage plants. These young plants will not require so much room; and hence, if they stand eighteen inches apart each way, that will be sufficient. As soon as they are established, and begin to grow freely, go over them, not later than the middle of July, and stop each plant by cutting the head off within a few inches of the ground: this will cause them to branch, and to become dwarf and very compact plants. If the larger plants are put out, they will require the same treatment as to cutting back, or they may be allowed to go on, and have all the points of the shoots layered the first week in August, by which means they will form very dwarf and compact plants for potting. One thing, however, must not be forgotten, and that is, that these small varieties must never be stopped later than July, or the probability is that they will not flower. Through the summer and autumn, the only care the plants will require will be to keep the ground clear from weeds, and deeply hoed occasionally; to water the plants in dry weather, giving them, when necessary, a thorough soaking; and to protect them by timely tying and staking, from being broken by the

wind. Towards the end of August, if the plants continue to grow strongly, go along each row on one side, and with a spade cut the roots to within three or four inches of the stem, then in about a fortnight go along the other side, and cut the roots in the same way, and, if necessary, a third and fourth time. This will check the growth of the plants, and by ripening the wood induce and promote the blooming principle. Chrysanthemums, to bloom them properly, should not be planted on a cold soil, as the buds are found to come blind, hard-eyed, and otherwise deformed: therefore, in cold situations, it will be found advisable to grow the plants upon a south border, or to remove them to other situations at the end of September. They will not receive much check if they are shaded afterwards, and receive a good drenching or two of water."

GARDENING GOSSIP.

No greater responsibility can devolve upon a nation, than that of imparting to its colonies, and to the foreign people beneath its rule, all the knowledge with which Christianity and Civilization have blessed its own progress. A nation which takes upon itself the government of another people, conquered by its arms, stands pledged to use its power for the benefit of the conquered. "The situation of man is the preceptor of his duty," said Mr. Burke, when hurling his eloquence at the East India Company; and though this Company have come far short of fulfilling that duty to the people of India, yet, in later days, they have made great advances in the right direction, and we believe that it may now be said of them, that where they conquer they benefit. One evidence of this, is their having established an *Experimental Horticultural Garden at Lahore*, and we have the pleasure to announce that the eldest son of our able contributor, Mr. Appleby, is appointed its curator, and the following is a very interesting extract from one of his letters, which Mr. A. has kindly permitted us to publish—

It is dated, Lahore, 21st Nov., 1851:—"Since I wrote you last I have succeeded in obtaining the situation of Superintendent of the Punjab Horticultural Society's Garden. The Garden is about 40 acres, and I live in a house that was inhabited by the celebrated Runjeet Sing during the summer season; this house is entirely shaded by immense Mango trees. The Garden, generally, is well wooded, both with fruit-trees and trees for use and ornament. There are some fine coniferae, especially Cupressinae; *Cupressus torulosa* rises here to a truly magnificent tree. Our principal fruits are as follows (the native names are printed in italics):—*Amygdalus Persica*, the peach, *Aroo*. *A. vulgaris*, common almond, *Badaince*. A native plum, name unknown, *Baur*. *Zizyphus jujuba*, *Eugenia jambos*. *Mangifera indica*, the mango, *Amb*. *Pyrus communis*, the pear, *Amrood*, only one variety. The quince, *Beh*. *Eriobotrya japonica*, the *Loquat*. *Nephelium Litchi*, *Leechê*; this is, deservedly, a much-esteemed fruit, and has a splendid appearance as an evergreen tree. *Cookia punctata*, *Wampee*. Guavas, several varieties, some of which would be acceptable even in England; the red-fruited, *Psidium pomiferum*, is the most esteemed, and called by the natives *Lal amrood*. Of pomegranates, *Anar*, we have several varieties, but not so fine as the Cabool ones. Oranges, *Karungee*; Limes, *Nimboo*; of these two we have thousands, which are very acceptable in this warm climate; oranges are now in fine fruit, and will be ripe next month. Fig, *Unjeer*, of this fruit we have only one variety. Plantain, *Kiela*, of this, also, we have only one species, it is now in flower, and looks like *Musa sapientum*. One sour grape, *Lingoor*, which has nearly overgrown a quarter-of-an-acre, it having been attempted to grow it on pollards of the mulberry. *Grewia Asiatica*, *Pihalse*, is a very nice and pleasant fruit; it being a small

tree I have no doubt it would fruit in the stoves in Europe. We have three varieties of the mulberry, *Foot*, one a small black one, and the other two green-fruited; these are long, almost like a caterpillar, and are very sweet. We are greatly desirous of having the fine black variety of Europe; the secretary has written, I believe, to the London Horticultural Society for grafts, &c., but we have not received any answer as yet. We are much in want of better kinds of European fruits. The garden was formerly divided in two; I have joined them together, and am forming a drive round the outskirts, with an edging of grass and a broad border for flowers on each side. The soil is good, but dreadfully overrun with weeds, as it has been neglected for years. I have cleared one garden and sown it with peas, beans, and other European vegetables, which look remarkably well, and astonish the natives not a little. I will send you a plan of the gardens when I have a little time. The carriage drive will be over two miles long, so that the border will take an immense quantity of flowers, of which I possess but a small lot; any contribution from your friends would be thankfully received. I am now increasing dahlias as much as possible; the slight frosts here do not hurt them. I have sown about 1000 pots of annuals to plant in February. The native gardeners are called *Mallees*, and of these I have 14, and about 100 labourers, not the most industrious men, but I hope to train them to habits of industry by-and-by. I have a tool (only one) of which they have great horror—a *spade*! The tool used for stirring up the soil is something like what you call a spud, to dig up docks with. English gardeners would be surprised at the mode of gardening here; the native gardeners here will do anything if they can sit to it! I intend, if I can possibly manage it, to trench the greater part of the garden, crop it with vegetables during the cool season, and with tobacco and poppy, to make opium with, during the hot season; I am induced to do it in order to raise the means to purchase seeds and plants. Our donations and subscriptions come in very handsomely; the Governor General has, I hear, been very liberal; Government has granted the ground, and finds us in bullocks to drag the water with, a very necessary and, indeed, indispensable element for us in this, for five months, dry climate, besides sending us 40 convicts as labourers.

"I am to have another large garden shortly, to cultivate European fruits and flowers in, to distribute through the upper provinces amongst the natives, and I intend, in a few months, to start a gardening periodical for the same districts. It is much wanted; garden information is at the lowest ebb. There is one for the hot or lower provinces, called *Speed's Indian Gardener*, but very short, and not fitted for these parts."

The plan of giving prizes for the best blooms of a flower that a dealer has to sell, is getting well understood. It pays well to give a few pounds in prizes, if it tempts people to buy ten times the value in the hope of showing for them. The only honest way of doing this is, if a man has a yellow, to give prizes for the best yellow; if he has a white, to give prizes for the best white, and so on, challenging all that are out; for if a flower will not beat all in its class, or, at least, equal the best, it is a fraud to let it out as a full-priced novelty.

It is, perhaps, too late with some of the societies to suggest, that they ought to give respectable prizes to those flowers which not only make a good appearance, but which especially show the skill of the gardener; we allude to *Balsams* and *Cockscombs*, which everybody may begin in February or March, or even April, according to the month of show. These prizes, therefore, cannot be swamped, as many are, by people well stored with the plants to be exhibited.

There are few things more effective, or that better deserve encouragement; we do not mean one or two prizes, but, as many can exhibit, five or six prizes, and let the Societies decide what sized pots they shall be shown in, say 24s, or

from six to eight inches across, or any other size they please.

Proposals are out for the establishment of a *Society of Amateurs only*, for mutual protection against worthless flowers, to decide among themselves what novelties they shall buy, and to receive at their meetings, for their judgment, any specimens which raisers choose to send; moreover, to report to their members quarterly, at least, the subjects they approve, and in what degree.

South London Society.—At the general meeting for the choice of officers, there were only six nurserymen candidates to fill up six vacancies. This is given as a reason why the partner of an amateur (who was rejected for another candidate,) was not also rejected as well as the exhibitor of his tulips. The unlooked-for, but apparently unavoidable re-election, has given great umbrage to some of the most distinguished and liberal members.

Ranunculus growing is not unlikely to become more general than it has been for some years.

Messrs. Tyso, Airzee, Lightbody, Read, Lockhart, and Groom, will, we believe, favour us with blooms of some of their best, and they have raised some very beautiful novelties, and we shall take some pains to let all likely amateurs have a sight of them. The planting time of the show varieties, for the June exhibitions, is from the first to the third week in February.

HOOKER'S GOLDEN CANE.



The section of *Anthericads* (*Antheric*), which, with our wood-cut, will

readily stamp its characteristics on the mind of every gardener; add to this, our literal translation of the name itself, and the impress of the plant is indelibly fixed in the memory. The name is derived from *Chrysis*, gold, and *baktron*, a cane, in allusion to the scape, or flower-stem, and the colour of the flowers. All the *Lilyworts* are six-stamened (*Hexandrous*), and referred to the first order of the sixth class in the system of Linnaeus, *Hexandria Monogynia*.

Hooker's Golden Cane was discovered in New Zealand, by Mr. Bidwell, who sent it to the Royal Botanic Garden, at Kew, in 1848, where it flowered for the first time last summer. It is, and was, kept in a cool frame all the winter. It is a native of boggy places. There is one other species known, *C. Rossii*, which is a native of Lord Auckland's Islands. — *Botanical Magazine*, t. 4602. B. J.

THE DUNG-BED.

DESPISE not, ye gentlemen of our time-honoured-craft—ye who would keep us perpetually in *hot water*—a few words of advice to young beginners and small gardeners on this relic of by-gone gardening, this stronghold of our Abercrombies, Speechlys, Forsyths, &c., &c. Not all the iron in Birmingham, and all the water of the Thames, have been able as yet to drive the old hot-bed from the garden. What the next seven years may do it is impossible to say, but it may, nevertheless, be conjectured, that however excellent the atmosphere of fermenting materials may be, people will begin to find other uses for manurial matters, unless the Peruvians should generously place their far-famed guano within reach of all; a consummation rather unlikely to occur. As, therefore, the dung-bed's requiem may not yet be sung, we must still cultivate acquaintance with it.

About the details of "working" the dung, &c., much was said last spring by the *THE COTTAGE GARDENER*; and we may now deal with the subject more in the abstract, casting a glance at important details for the sake of new readers.

GENERAL POLICY.—We would fain render this significant; and the aspirant who (with an undue amount of enthusiasm, we may lament rather than blame) thinks more of making early dung beds for cucumbers, melons, &c., than of providing linings for them, will find himself in an awkward predicament before the early spring has passed away. He certainly may meet with a little genuine sympathy from *THE COTTAGE GARDENER*, from men who have passed through this trying ordeal in their younger days, enabling them full well to appreciate the anything-but-agreeableness of a false position, and who, of course, are enabled to meet his lamentations in the querist's column. Let every one, therefore, "take stock" before he appropriates his frames, pits, &c., for the spring; look well at the amount of fermentable materials, present and prospective.

And here, by a timely forecast, means may be taken to economise hot manure, and other fermentative materials used as linings, by laying by all boughs and branches of evergreens, the prunings of the shrubbery, &c., such should be preserved in a most miserly way, for their use is very considerable.

The wind is the greatest enemy to the dung-bed, and those who are short of warm manure should keep their linings constantly sheltered by protectors, and these may be boughs or branches stuck all over them. Nor is economy the only object; a covering of some kind as protective of the linings, is of eminent service in preventing sudden fluctuations, and too severe depressions

of the *internal* warmth. It is a very good plan to have some wooden protectors covered with mats or straw, made specially; we use the former, for they are speedily made, the frame work being firm, they are renewed at any time in five minutes. These may be made like a sash-frame, four sides, of about half the substance of a cucumber-light, with a diagonal strip at each angle to strengthen it. We make these just the size of a full-sized Russia mat, which is, we believe, about eight feet long or so, and perhaps four feet wide. When we receive our stock of mats for the season, we sort out all the reddest and most oily-looking for such purposes, and such we stretch on this frame, one mat to each, nailing it round the edge, the nails being driven through a piece of list to secure them. These we find valuable things; indeed better than the boughs, although rather more expensive, but they save labour. Our linings are always surrounded with a frame of these, so that it may be said each frame is in a little snug framed ground of its own, and the saving of labour consists in the speed with which they can be removed when operations become necessary, for, in this case, the boughs are more tedious.

On the clever management of the *linings*, much of the success of the forcer depends, and amongst other points, turnings should be practised once a week, if possible, until April. All materials should be fermented slightly before used, in order to secure equal moisture, and when applied to the pits or frames all snow be swept off as soon as possible: nothing depresses the temperature worse than snow. In very windy weather, and when the temperature becomes suddenly depressed, we are in the habit of elevating our protectors so as to carry the wind completely above the face of the glass. The front, or south side linings should ever receive most attention; for as the heat within will follow the inclination of the roof, or, in other words, will rise, a liberal supply must be insured where the greatest demand exists. And here we must urge another well-known maxim amongst the practicals; that is, never to disturb the whole of your linings at one time; do the front this week, and the back in the next, and so on with the rest.

And now a few words about the *interior of the frame*, beginning with a talk about *sweet dung*, certainly not a consistent mode of expression at first sight; but as we have no other technical mode of description more appropriate, and as it will not do for every scribbler to coin words, the term, perhaps, had better pass on. Sweetness, then, in the dung, of which the early bed must be in part compounded, is so essential, that all the preceding prattle about linings may speedily be rendered useless by a non-observance of this previous arrangement. It was before observed, that the "working of dung" was handled in close detail in preceding numbers; we will, however, so far trespass on the courtesy of our more experienced readers as to point to a few facts.

If fresh dung from the stable door be thrown speedily in a heap, in a moist state, it will give out most deleterious gases for some time; and, if not turned in a week or ten days, an excess of dryness will occur, which will shortly render the dung well-nigh useless for heating purposes. Regular moisture is absolutely necessary, and by a due amount of this, and a frequent turning, so as to expose in due succession all parts of the heap to the action of the atmosphere, the process termed by gardeners "sweetening" is accomplished, which is a brief term for driving off the ammoniacal gases.

So, then, frequent turning and moistening is the way to dissipate those gases which, in too concentrated a state, are destructive to vegetable life; and once a week may suffice for the turning. We may here inquire whether it is expedient to use dung alone. Nothing that we could ever discover is comparable to dung and

oak leaves, in equal parts, or if not oak, any other leaves available.

Of course, this advice applies to the *very early* dung-bed; those made later may have their amount of leaves much increased. It is very necessary in the earlier beds—and, indeed, in all beds—that they retain their warmth for a very long period; we may as well say at once that its fermentative character should never entirely cease whilst the occupants continue producing. We have little doubt that many of the ills that are fatal to the cucumber, melon, and other forced vegetables and fruits, are attributable to an improper declining of bottom-warmth—the forcer's grand requirement. If our districts, noted for the production, out-doors, of cucumbers, very early potatoes, &c., be examined, it will be found that their envied success depends on local circumstances pre-existent and independent of the means taken to produce the respective crops. Peculiarity of mechanical texture in the soil, a dry bottom, an inclination to the sun, the shelter of distant high grounds, and, perhaps, we may add, in many cases, a somewhat dark-coloured soil absorbing a considerable amount of the solar rays—in other words, a soil at once fertile, accumulative, and retentive of the sun's warmth, with an immunity from cutting winds. All this, although somewhat digressive, is at least illustrative, and will serve to draw attention to the utility of bottom-heats, not fierce, but permanent.

Next let us consider *ventilation*. Somehow the word ventilate amongst some of the gardening craft has attained such an indefiniteness, that, like some acts of parliament we have been told of, a man may drive a coach and six through them. "Give air," says one; "Let out heat," says a second; "Let the moisture escape," says a third; and a fourth wiser, as we think, than all the foregoing "sound practitioners," whispers, "Promote a constant, although quiet, motion in your confined atmosphere, inasmuch as the object is not to cultivate obscure ferns, fungi, and other Cryptogamous things, but really useful fruits and vegetables; let, therefore, stagnation of air be the exception, by no means the rule." But the novice will say, How am I to "give air" with such a wind—such a frost? Certainly, with an outside thermometer of ten to twenty degrees of frost, or a cutting north-easter, or, what is as bad, one due north, this "motion in the air" need not be attempted. But our opinion is, that motion, circulation, call it what you will, may be maintained day and night for at least two-thirds of the forcing season.

And now it will be seen why so much fuss was made in the commencement of this letter about good linings. Let no novice suppose that by making powerful beds he will thus be enabled to compete with severe cold. No, strange to say, if excess is practised in this part of the business, the odds are that burning takes place; "there is a traitor within the camp." Here, a little infirmity attaches to the old "dung-bed," it is often guilty of extremes, and liable to vicissitudes.

As parting advice, then, we say, so discreetly manage your dung-working as to dissipate the noxious gases, yet retain a strong fibre in the fermenting mass; one, in fact, capable of speedily sympathising for months with the "linings." These things done, and the former advices carried out, try and persuade your cucumbers and melons to fancy themselves out-of-doors in their own clime, and they will by no means be offended. We did intend to have added a few remarks on some points of subsequent culture; and amongst the rest about the application of sulphur, about which we have received, it seems, a kindly hint and challenge from our very scientific and clever helpmate, Mr. Fish. This, however, must stand over, as nothing imminent pertains to delay in this respect.

R. ERRINGTON.

BEDDING GERANIUMS.

THERE is a white-flowered variety of *Unique*, a very strong grower, and the leaves not so soft or downy; but it flowers too sparingly for a bedder, and it seems to be quite barren. It is a good variety, however, to force in the spring for cut flowers, and the way to make the most of it is to keep it well cramped at the roots all the summer, and to have it in its flowering pot before the middle of July, and from that time to the end of September to keep it stopped at every second joint it makes. It will stand the same degree of heat as *Alba multiflora*, but will not come into flower so soon. Every conceivable experiment ought to be tried with this geranium, to see if it can be made to seed. Starvation at the roots, old age, and a sudden check or change of temperature at the moment the flowers are ripe for crossing, are the best-known rules for causing geraniums, that are shy to seed, to become breeders. The easiest way to accomplish all this is to use poor, light soil for potting, to keep the plant or plants in the same pot for years, without any change of soil, to give them no stimulus, by extra heat or otherwise, through the whole winter and spring, and to endeavour to keep them back from blooming to a later period than is natural to them, and when the flowers begin to open stop the shoot a joint beyond the truss, and set the plant in a cold draught, and give it very little water for a few days. I am quite confident that each of these steps will help a shy breeder to seed, also that old age helps the process.

The cause of barrenness in geraniums is more mysterious than that in any other family of plants that I have tried. I never met a single instance in the whole race in which the female organs were not quite perfect, as far as could be made out even by the help of magnifiers. The male organs, on the other hand, have all kinds of defects, from a barren anther to the want of any traces of their existence beyond a toothed ring where they ought to spring from. Their numbers, when they are developed, are as variable as the colour of the flowers. Another freak worthy of notice, and one which ought to save a promising seedling, is that for some years a seedling may be quite destitute of pollen, and yet turn round after a while and produce pollen in abundance. Witness *Compactum*, in which, at first, you could not meet with a pollen anther in a hundred flowers, but now it is as rare to find a barren anther. The same with *Tom Thumb*. I recollect Mr. Ayres, who first brought Tom into notice, being quite fierce with some one who offered seeds of it for sale; he said the thing was downright imposition, that he had known it for so long a time, and that it produced no seeds at all. Meantime, however, Tom was getting up to the age of manhood, and thenceforward has seeded as freely as any of them.

Now, it is well worth while to keep this in mind, as when we get a seedling, however poor in colour, from a section that is hard to seed, we ought to keep it some years, although at first we might think it of no use because it had no pollen. The very distinct sections of geraniums will only cross—for some generations—with others belonging to the same section as themselves, and when any of these are ticklish to seed, a seedling like the above comes in very useful if it ever produces pollen. Hence it is that I would strongly recommend the *White Unique* to be kept for the chance of yet getting it to seed, or even to yield pollen, because we are very short of kinds in the section of *Unique*, and they have not yet crossed with any in the other sections.

Moore's Defiance is the only other sort that I know of which belongs to the true *Unique*, or *Capitatum*, section, and, like the white one, it is hitherto quite barren; it has dull scarlet flowers, runs a long way, but with us it does not make a good bed; but I am told that in the Isle of Wight, they leave it out in the beds

from year to year, with a slight covering in winter, and by that means it blooms beautifully every year, and is one of their best bedders there. I have no doubt but the white one, under this treatment, would answer equally well.

Here, then, ends the list of this section, *Queen of Portugal*, very scarce; *Shrubland Pet*, much scarcer; *Unique*, purple and white; and *Moore's Defiance*. It will save trouble in our correspondence, if our readers will bear in mind that no other geranium that we know of will cross with any of these; but still that is no reason why some one might not succeed better, and a haphazard experiment may prove how little the best of us know on the subject. For walls or pillars, and for pyramidal training in pots, the *Unique* section is well adapted, owing to their free growth and long-jointed stems; and we are much indebted to the young gentleman who sent us word about the best way of rooting cuttings of them in summer.

Lady Mary Fox is the best and the last of its race. I am not sure that we have another belonging to the same section, but I have known a good many of them. *Reniforme* and *Sapeflorum* were the wild parents from whence this favourite race first sprang. The third or fourth generation in this line produced one called *Ignescens*, which was a great favourite thirty years ago. After that came *Ignescens major*, a still greater favourite followed by *Fire King*, which brought them to the borders of the *Unique* section. If these old geraniums are now lost, as I expect they are, we have no means left us to extend the race of *Lady Mary Fox*, for I am quite certain it will never cross with any other geranium out of its own strain. No one can take more pains with it, or try more varied experiments with it than I have done, and as I am constantly asked how to improve or go to work with such and such bedders, I mean to put the whole on the best footing I can before I have done with them. I know very well, however, how *Lady Mary Fox*, or the breed to which it belongs, may be improved to a certainty, and that is to begin at the beginning again, and to keep every plant that seeds in every cross or generation, until you push the race to the exact stage at which we now see it represented in *Lady Mary Fox*, that is, to a dead lock. Then turn back, and see which are the best of your reserved seedlings which proved fertile, and then cross them round in a circle under very high cultivation. This is exactly the route by which the florists have brought up their *Pelargoniums* to be the wonder of the age, and yet many of them deny the inference when they say that breeding in-and-in spoils their stock, when the truth is that nothing else but brooding in-and-in has been going on among them for the last twenty years. The offspring of three wildings only are the only materials that have been worked on with during that time. However the tints have been varied, the blood has not been altered since Garth and Foster, the fathers of the large geraniums, took the reins from the hands of Dennis and Weltje, the last of the old race of breeders. Breeding in-and-in went on prosperously for a dozen or fifteen years, but, like our bedders, it has come to a stand still affair at last. I have seen every new seedling, as it appeared in London for the last twenty years, and were it not that the "fancy" ones had been made use of, and have given some fine variations to the race, I can safely assert that there was not a single improvement *as to race*, in all the seedlings which were exhibited for the last ten years, although a wonderful improvement was going on all the time according to the views of the florist's fancy. Circularity and substance of petal kept the game alive all that time, but at last the "Little Fancies" made a grand improvement in the hands of Mr. Hoyle. *Ajax* and *Ocellata* leading the way. *Their points* ought not to be lost, nor

a seedling of good colour got in the same strain for years, if it seeds, although the flowers gaped like snapdragons. The great fault, or misfortune, has been, that as soon as an improved seedling appeared in any section, the more inferior parents were cast away, and when that race arrived at the last stage and became entirely barren, there were no more plants left to experiment on in any other direction. *Lady Mary Fox, Rouge et Noir, Quercifolium, Coccinium, Sidonia, Spleenii*, and a few others are familiar instances in proof of this view of the subject, every one of them being in the last stage of so many sections, and all of them barren, with none of their respective sections now left to try more experiments with. For a long time I thought the *Diadematum* section was in its last stage also, but I got one seedling from *Diadematum rubescens*, the one called *Regium*, the fourth variety, three of which produce abundance of pollen, so that we have good grounds for believing that the *Diadematum* section may yet be much improved.

Sidonia, Spleenii and *Diadematum bicolor*, with striped flowers, puzzle me as to their parentage; they are the produce of three distinct mothers by the pollen of one type, whatever it may be. In *Sidonia* we see the gouty stems of some of the tuberous-rooted sections quite apparent, and so seeing, there can be no question about the great changes which may yet be effected by introducing the pollen of the wild tuberous species to some of our improved sections.

There is *Curate*, a perfectly barren kind, and only removed a few generations from *Reniforme*, by the pollen of some of the oak-leaved section; but now we have no means of improving it, or of varying the experiments by which it first appeared. In short, taking a general view of all our best bedders, we shall find ourselves in a fix, from which we cannot budge one step for want of materials; and it is much better to own the fact at once, and not waste more time in hopeless experiments; but let me give a description of these barren ones, for the use of young beginners.

The breed of the *Unique* I have already described, and they are all barren except *Unique* itself. *Lady Mary Fox* is, perhaps, the best bedder of all; the flowers are large, orange red, with large dark blotches in the upper petals. It should not be propagated in the summer, because after it comes into flower to the end of the season, there is no cutting to be got from a thousand plants except of "flowering wood," and that soon turns a plant naked and too loose for a well-clothed bed. I burnt my fingers with it twice from over-greediness, striving to get rich in it too soon, instead of being content with spring cuttings, which never fail to make fine healthy plants with full foliage. It will not stand forcing. *Rouge et Noir* is quite barren, but has plenty of pollen; the flowers are red and black, as the name implies. It is the hardest of all the bedders, and the freest grower; will easily root all the year round, and never fails to bloom freely to the very end of the season, unless the soil is rich. Poor dry soil suits it best, and the older the plants are the better they flower. Mr. Davidson, my successor, intends planting a row of it next summer close under a hedge of *Gloire de Rosamere* rose. The effect will be good, no doubt, for the particular situation; but the combination, or the two together, in nine places out of ten, would not please fastidious people.

D. BEATON.

MANAGEMENT OF CAPE HEATHS.

HAVING attended to the modes of propagating by seeds and by cuttings, and stated the soil and conditions most suitable; having stated that, in many cases, it would be more economical to purchase nice young plants than to raise them; and having given directions for the choosing of plants in general, and hard-wooded plants, such

as Heaths, in particular, I now proceed to their general management, not confining myself, however, to the well-trodden highway, where those who are fortunate in possessing the most extensive means alone could follow; but taking a saunter into the by-lanes, whenever the doing so would be of service to those with very limited conveniences, and who yet wish to possess a few of these interesting plants.

Particular as are the attentions necessary in raising plants from cuttings, it is somewhat singular that some very successful in propagating, are not equally successful in growing the plants afterwards. This is, so far, a matter of regret, as it helps to foster the idea that there is something of the "mysterious" about Heath growing, known only to the few. I have already, as a matter of honesty, indicated the common causes of failure in mixed houses, where a show of bloom is required in winter; but these obviated by care and forethought, there will, of necessity, be no more difficulty with a Heath than with any other plant we usually cultivate. The great proportion of failures among young beginners, is the consequence of mistaken fondling rather than neglect.

On the other hand, want of high success in growing in the case of those extra-successful in propagating, in the few cases that have come under my own observation, seemed to be owing to a want of sufficient attention after the plants had arrived at a certain stage. No hen could be more attentive to the brood under her wings than they to the tit-bits under the bell-glasses, but, ungifted with the instinct of the fowl, they dismissed from their tending care their younglings long before they could shift for themselves; in other words, consigned them to a treatment the very opposite of that to which they had been accustomed. Thus, who can look at and not admire the order and the method in which these propagating pots have been prepared; the draining, the soil, the sand, all so perfect; the planting so regular and mathematically correct, and the glasses so clean and nice; moisture regulated as if there was an hygrometer under every glass, and air and light meted out to the circumstances of the little inmates; nay, we may go a step further, and ponder over the care exercised when three or four little plants are inserted round the sides of a pot, though even then the first symptoms of careless go-a-head-ism may be manifesting itself in the deficiency of drainage, and the too open, or too close, nature of the soil, from the effects of which the young plants are saved by their proximity to the sides of the pot, acting as a safety drain. But let such a superiority to trifles go on for a year, or several years, and under repeated shiftings, and some fine morning, when you cannot conceive how, yet the plants will get *foxy* under all your care. You turn one out of its pot, and find there are only two or three bits of crocks for drainage, and these are cemented together over the hole in the bottom of the pot, by all the finer soil becoming washed down there; while evidence is not absent, owing to this and the constituents of the soil, that the roots have been placed alternately in a marsh and on a dry hill top. Noting this observation down, and proceeding in your examination, you may find that the collar of one plant (that point whence roots and stem proceed) is sunk as much in the soil as it would be necessary to sink a Water Lily under water; while, in the case of another plant, you may find that not only the collar of the plant, but a considerable portion of its ball and roots are as carefully raised above the surface of the pot, as Mr. Appleby would direct for some of his gorgeous Epiphytes. Amid such extremes there must be a medium, not only of safety, but of success; and keeping in view the beginnings, I consider that not the least important of these is the

Potting.—It is not so long ago since attention was directed to this generally, and what is necessary for the

present, therefore, may be comprised in a brief compass. First, the pots should be clean, or new, well-burned, neither so hard as to be partly vitrified, nor so soft as to be spongy, and very porous. The inferiority of the latter, to well-burned pots, was first stated, so far as I am aware, in the pages of this work. If the pots are new, they should be steeped in water, and then dried; otherwise they would greedily suck moisture from the soil next them, and thus deceive you as to when watering is required. Old pots, after washing, should also be thoroughly dried before using. If very dirty, the scrubbing will be rendered more easy by putting soda in the water, and using it in a warm state: dip the pot in clean water after doing so. The man who would put a nice plant in a dirty pot deserves to be, and in all likelihood will be, a "stick-in-the-mud" for life.

2ndly. Drainage. I merely recommended caps to cover the hole in the bottom of the pot: a good substitute is a piece of broken pot, with its convex side downwards, so placed that a worm could not wriggle itself in. This must be surrounded with other pieces placed hollow. It matters not much what it is (corks, pebbles, washed gravel, or charcoal; we would have a part of the latter, and would not object to some of each) provided there are several layers, and the smallest uppermost. This is of more importance if, as recommended above, the first crock is placed with its rounded side downwards; for though that would not prevent the extra water draining away, yet it would be apt to become water-logged if the finer soil was washed down, and blocked up around it. To counteract this we place the fine drainage uppermost, and, to make doubly sure, we place a thin layer of moss over the drainage to separate it from the soil. Moss, all things considered, is the best. Chopped wheat-straw is an inferior substitute, as it possesses none of the moisture-retaining qualities of the moss, and neither does it so effectually prevent the finer soil passing. From one-sixth to one-eighth of the depth of the pot may be considered an average for drainage; but for strong-growing Heaths less will do, and for tender, slowly-growing ones more will be necessary, unless great care is taken to prepare the compost in such a manner that there need be no dread about using the watering-pot.

3rdly. The Compost. The right soil I have already described. The mode of preparing it must be regulated by the size and age of the plant, and the size of the shift given. It is generally got in turves from an upland Heath. For the first pricking-out of young plants, and for one or two subsequent shiftings, these turves may be knocked or beaten to pieces with a spade. For such small plants the soil must be fine and lighter, that is, containing more sand, than that required for older plants. This is the only case in which I would admit of sifting in the common acceptation of the term, for separating the ling and more turfy portions of the heath mould, as these latter will be required for older plants. For the second or third shiftings, when small shifts are given, the above sifted soil would answer well, provided it was sifted over again, with a very fine sieve, for removing the finer earthy matter. After the plants had filled a four-inch pot, this is the only use I would put a sieve to in preparing compost for them. After this, also, though it might not answer in a commercial establishment, I would advise amateurs to discard the spade for chopping their turves, and to pull them to pieces with their hands. This will require more time, but you will have no reason afterwards to regret it as mispent. You will thus obtain pieces of the size you want, without a great portion being rendered too small for your purpose. In the tearing it asunder plenty of fine matter will be obtained to pack the lumpier pieces firmly. The best devised garden utensil is nothing compared to fingers for such work. The size of the turfy pieces must be

proportionate to the size of the pot, and the size of the shift given. The larger ranging from the size of a field-bean in a four-inch pot to that of a walnut, and hen's egg in one of sixteen inches, with intermediate smaller sizes down to the dustier matter that unites them all together. Openness, united with firmness, is thus obtained for the equalizing of moisture and atmospheric influences. A result to be gained, neither by using few and large pieces, nor yet by going to the other extreme and adopting finely-sifted soil. The Heath soil if kept out of doors, will seldom be too wet, unless in rainy weather, when it may quickly be sufficiently dried. When kept under cover it is apt to become too dry, and then should be watered sufficiently through a rosed watering-pot, and turned over with the hands, until it is found to be in that pleasant medium state that is neither wet nor dry. Next to the unpardonable act of placing a heath in fresh soil, with its ball of roots and earth in a dry condition, is the using compost, mud wet, or so dry that the water runs off it, or stands on it, instead of going into it.

The main part of the compost being thus secured, other ingredients must be added to increase its firmness and openness. The most important of these is sandy matter. Some heath soils have enough of sand naturally, but most require an addition, so that altogether it may constitute about one-fifth. Rather more will be wanted for young plants; less will do for older ones, and more especially if gritty, soft, broken freestone constitutes an ingredient. The sand should be of the best quality as described for cuttings. About one-quarter part more may consist of equal proportions of charcoal, broken pots, and freestone, using most for large shifts, and proportioning the size of the pieces to the size of the shifts. R FISH.

(To be continued.)

ARTOCALYX ENDLICHERIANUS CULTURE.

THIS fine plant, Endlicher's *Artocalyx*, is another addition to the large tribe of Gesneriworts. It was discovered by M. C. Heller, a foreign botanist and collector, in the woods of Mirador, in the South American province of Vera Cruz, and was sent by him to M. Abel, an eminent horticulturist at Vienna. In his hothouse it flowered for the first time in Europe, in 1848.

It is a remarkable plant, and of noble appearance; the stem is strong, and clothed with stout, short hairs, almost approaching to prickles; the leaves are very large, very strongly veined, and toothed at the edges; the calyx, or flower-cup, is deep green, and thickly covered with almost black hair—from this circumstance it has its name, *arto*, bear's skin, *calyx*, flower-cup. Its second, or specific name, is given in honour of M. Endlicher, the celebrated botanist. The corolla is large, tubular, and swelling out to its margin, where it expands into five segments, the edges of which are deeply cut into fringes of yellowish hair. The outside of the corolla is of a golden hue; the inside of the segments is of two colours, the ground colour being buff, but striped with crimson purple. The flowers are produced on the stem, from the axils of decayed leaves, under the living ones, and generally in pairs, the one opening before the other. It was found in mountainous regions, about 2000 feet above the level of the sea, and there, in the freshness of the shade, they flourish in the deep gorges of the mountains seldom visited by the foot of man. In these places, where humidity arises from the still waters, or from decaying vegetables, they flourish upon such rustic pedestals as the short trunks of fallen trees, to which they fix by their long roots. Their single light stems, slightly woody at the base, raise their branches to the height of a man, ornamented with bunches of golden

flowers, shaded with their beautiful, velvet-like leaves. The larger calyxes remind us of the large hairy helmets of some of our horse soldiers. The plant is as yet very rare, but as it is not difficult to propagate, and is already in the nurseryman's hands, it will soon be come-at-able.

Culture.—The above description of the native locality in which this curious and handsome plant was found, points out the proper mode of culture. If all our collectors were to send home, along with the plants they obtain, such an accurate description of the way and situation in which the plants grow, we should have but little difficulty, with the means we possess, of cultivating them successfully. Four points are necessary to attend to in growing this plant—shade and moisture, a high temperature, and a loose open material for the roots. All these may be attained in our stoves, but more especially in the orchid house. As it partakes, in its peculiar locality, growing on the dead stumps of trees and sending its roots downwards, in much of the habit of some orchids, the soil to pot it in should be of similar materials in which we cultivate that class of plants; that is, a composition of rough lumps of peat, half-decayed leaves, mixed with pieces of decaying wood and charcoal; the pots to be well drained. The plant, at the time of potting in the spring, should be placed in the centre of a large pot, the materials put in around it, and the surface covered with green moss. Place it in a shady part of the stove or orchid house; supply it with plenty of moisture in the air, and frequently syringe it overhead with water, having the same temperature as the air of the house. It is a continually growing plant, and, therefore, requires constant moisture; but as all plants require, to a certain degree, a period of rest during the winter months, the heat and moisture should be then more moderate, but water at the root should be never entirely withheld. In the spring and summer, when freely growing, it ought to be shaded from the bright rays of the sun; yet the cultivator must remember that, in the deep shades of a South American forest, the excessive light of those regions penetrates so much as to equal our daylight when the sun does not shine; therefore in cloudy weather let the plants have the full light of day; or, in other words, remove the shade whenever the sun does not shine clear and bright.

Like all the order of Gesnerworts, this plant increases readily by cuttings. Short shoots frequently push forth from the stem, and if taken off when young make the best cuttings. Insert them in sand under bell-glasses, taking care that the leaves do not come in actual contact with the glass. Plunge the cutting-pots up to the brim in a moderately heated tan-bed, or set them upon a heated bed of sand, coal-ashes, or fine charcoal, any of which are excellent for the purpose. As soon as they are rooted pot them, and repot every five or six weeks, till the plants attain a large size, and are fit to put into blooming pots from eight to twelve inches wide; then treat them as the older plants described above.

T. APPLEY.

MR. GLENNY ON FLORISTS' FLOWERS.

B. T.—The white, funnel-shaped flower from Norfolk is not new; it is a *Brugmansia*, and was raised years ago by Knight (of Battle, we believe), and named by us, at the time, *B. Knightii*. It is far superior to the old and well-known *Datura arborea*, being double, whereas that is single.

PANSIES (*T. Kean*).—Not one of them is in colour or character as it will be in spring, although bloomed in pots and under glass. We must defer opinions till then.

MR. HENDERSON'S TRAVELLER is quite mistaken as to the enclosure of a sovereign operating upon our opinions of flowers; and that it was wrong of him to mislead a Fulham nurseryman by stating that which was untrue,

and if he inquires, his much-respected employer will tell him so. The only compliments we ever received, was an occasional plant of anything we had praised, the raiser thinking, perhaps, that we should not object to grow a thing of which we had given a good opinion. There is no man living can accuse us of taking a bribe, or selling our opinion.

CINERARIAS (*H. D.*).—All three may be good in season, but there is no such thing as a flower in proper character now. We suspect the colours will be more intense, and the white purer, when the plants attain more strength, and the season comes round for blooming. The one without a notch is promising, but we can say no more.

J. S.—The bulb of *Hyacinth* sent was bad from the first, there is no fault in the water nor the growth. A very experienced dealer could have told it was bad; and nearly all going bad alike is no fault in the grower, except his first fault of buying at the Auction Mart, where diseased roots are sold by thousands every autumn. It may, as J. S. says, be vexing; but if amateurs will not deal with respectable persons, they deserve to be taken in. Where can growers get rid of worthless bulbs so well as by auction, to people fond of bargains?

VERBENA CULTURE FOR EXHIBITING.

(Continued from page 232.)

PROTECTING WHEN IN BLOOM.—As soon as the flowers begin to expand, they require to be sheltered from the bright rays of the sun, and the rough, ungenial storms of rain, wind, or hail, that often visit us in the early part of the year. Those in pots, in frames, are very easily protected from too bright sun, by a covering of thin canvass. This is far preferable to mats, because the rays of the sun are sufficiently tempered with the canvass, without excluding too much light; whereas the mat causes too dark a shade, and thereby injures the colour of the flowers, besides very sensibly impairing the health of the plants. The way we manage is to procure the canvass wide enough to reach across the frame; it is then rolled out the whole length of the frame or pit, and cut off the exact size, leaving a small portion at each end to double over two round pieces of wood that are just as long as the frame is wide. To these the canvass is nailed, with short, flat-headed nails. One of these pieces of wood is fastened firmly at one end, and the other is loose to roll the canvass on. When the sun is powerful enough to spoil the colours of the flowers, the canvass is rolled out, and firmly fastened at the other end with short stricks of strong cord; this keeps the canvass stretched out, even in windy weather, and effectually answers the purpose. The cultivator, however, must be careful not to shade too much. It should not be used too early in the morning, and should be removed as soon as the sun's power begins to decline in the afternoon; should clouds intervene during the day, remove the shade immediately. The light is needful to bring out the colours bright and distinct. In using the shade, another point must be attended to, and that is to reduce the air. Shade reduces the heat; and to prevent a too great and sudden change, the stream of fresh air rushing in behind the frame should be lessened, but when the shade is removed more air may be given. This, of course, depends upon the state of the external atmosphere at the time, and in this particular the operator must exercise his own judgment.

Shelter for Verbenas that are planted out in the beds.—Though the verbenas are, comparatively speaking, a hardy plant, yet to bloom it to perfection, so as to be able with certainty to place flowers fit to compete with upon the exhibition table, protection from ungenial weather is indispensable. The necessity for this shelter caused

us to recommend the plants from which the flowers for exhibition are to be gathered to be planted in beds, four feet wide, and as long as the ground would allow; a round or fancy-shaped bed could not be so readily or conveniently sheltered. The kind of shelter we recommend is that formed with hoops, long rods, and lengths of oiled canvass; the garden mats might be used, but the shade they give is too much. In frosty weather, which sometimes occurs even so late as April, the mats might be used during the night with good effect, but during the day, to shelter from the sun or storms, the canvass is by far the best. The way to apply these shelters is as follows:—If wood edgings are used, procure a sufficient number of iron staples, and drive them into the wood, about an inch-and-a-half from the top, at four feet apart, and exactly opposite to each other, leaving sufficient of each staple projecting to receive the ends of the hoops; then procure a sufficient number of strong stakes, either round or square, the latter is the best; sharpen one end, and saw the other off directly across; drive one in at each end, and exactly in the middle of the bed, firm, leaving them out of the ground about two feet-and-a-half; then drive others in, at equal distances, down the centre, in a straight line with the two end ones; the distance between these need not be less than six feet. These stakes are to support a long rod, and this is to keep up the hoops a sufficient height above the plants when in bloom; when this long rod is fixed in its place, nail it down securely to the row of stakes. The structure will then appear like a house with the rig-tree fixed, the rafters being wanting; these are to be formed with the hoops; the best kind are of hazel or ash rods. Cut them the right length, insert one end in the staple, and gradually bend it over the rig-tree, and thrust the other end into the corresponding staple on the opposite side; proceed, one by one, till the whole length of the bed is furnished with these rafters. Perhaps it will be found necessary to put in a nail at each end of each hoop, to keep it perfectly secure in its place; in such a case, the nail should be driven in an inch or two below the staple. The building has now advanced another step, and, to complete it, two more long rods will be necessary; place these at exactly an equal distance from the central rod and the ground, tie them with strong twine to each hoop. If the bed is very long, the rods need not be the entire length, but may be in two or three pieces, and tied together where they meet, allowing two or three inches to wrap over each other for that purpose. The building is now ready to receive the roof of canvass; this should either be procured ready made, of sufficient width to cover the bed from side to side, quite down to the edging, or it should be in two pieces, sewed together, the same width. This covering should be in lengths sufficiently handy, so as to be easily thrown off when not wanted.

T. APPELBY.

(To be continued.)

FORCING CARROTS.

For the next three months every contrivance that the managing gardener can adopt, will be required to "shelter," or, it may be, "force" something or other into a condition which it could never have attained at that time without such aid. And the vegetable which forms the subject of our present essay, is one of those which require both the agencies mentioned above, "protection and heat"; but, at the same time, its importance is seldom regarded of such paramount consequence as to entitle it to a frame and lights, except in places where these articles are plentiful, or it may be where young carrots are specially wanted very early in the season, as in our own case, where we have sown them some

time ago. But as the great mass of cultivators are anxious to have this vegetable as early as they can, without being able to afford it "glass," we shall address ourselves to the task of assisting them with advice on the matter.

Most writers on gardening recommend a quantity of this esculent to be sown on some dry border in the autumn, and there stand the winter, to be drawn in spring when of the proper size; now, though we have adopted this plan for many years, we confess the produce so obtained can never be denominated young carrots. In fact, we have known a tolerably good judge rather puzzled to know what kind of roots they were when deprived of their tops, as the long period of dull cold weather they remain in the ground so alters the character of the variety, that though it may have been of the best *Early Horn*, or *Long Surrey*, bread, yet it becomes so blanched as more to resemble a parsnip than a carrot; and when the genial weather of spring does set in, it will be found that full nine-tenths of the crop run to seed at once, and become, of course, useless. This state of things we have experienced so often, that we only sow a few every year for the commonest purposes, and depend on our frames and other resources for the supply of useful roots required in spring.

When, therefore, the amateur has a frame to spare for such a purpose, we need hardly go over the beaten track in advising him to make up a hotbed of well-tempered fermenting material, put in the requisite quantity of soil, and sow the seed—these matters are so well known as to be no longer necessary to name them; but when a sort of "make shift" has to be adopted, some little contrivance must be called into action. In the first place, we will suppose the amateur to have plenty of leaves, or it may be leaves and horse-dung mixed, or, if the latter alone, we will suppose it sweetened by frequent turnings, &c. We will also expect there to be some coarse, useless slabs, or deals, lying about, and a pole or two, with some light hurdles. A suitable place being fixed on for making up the bed, let that be done rather carefully, as it ought not to sink unevenly afterwards; the quantity of carrots wanted will regulate its length, and the abundance or scarcity of heating material will, to a certain extent, do the same to its height. This done, arrange the slabs with their sawn sides out, nail them together at the corners, and if the sides be of great length and likely to get bulged out, a cross piece may be introduced with advantage, taking care in making it that it is something less than the hotbed it is to stand upon; this done, drive a row of stakes down the centre of the bed, which they will easily do until they reach the ground: after cutting their tops even, say at two feet above the level of the slab frame, nail a straight pole along their tops. This is to act as a ridge against which to lean the shelters, and we strongly advise the inexperienced cultivator to have everything in that way prepared before he puts on the soil, and sows his seed. We usually thatch hurdles carefully, and let them lean against this centre rail or ridge, and make our beds the proper width to suit these hurdles; and as our beds run east and west, on coarse or cold days we leave the north one on all day. Something, also, must be contrived to stop up the ends, which may remain stopped in the day time; a mat, folded so as to resemble a gable, makes no bad substitute for these necessary architectural auxiliaries. Some little taste will be required to give the whole a snug appearance; and though we have no hopes of stopping the ingress of a certain portion of cold air, yet we advise the cracks and other openings to be as small and as few as possible. When all arrangement about the roof is completed, put in the soil and sow the seed. The soil ought to be made porous by sand rather than by leaf-mould or dung; the latter ingredients being too apt to

induce a forked growth. It ought also to be at least eight inches deep. The *Early Horn* is the best variety for this purpose, and, in fact, for most others in the garden, it being much sweeter than the larger kinds. A slight sprinkling of *Radishes* might be sown with the carrots; but care must be taken to remove them before they do any harm to the carrots: and we only advise their being sown in consequence of their quicker vegetation and after-growth.

We do not presume the above details are the best to suit all cases; so much depends on the available resources, that much must be left to the ingenuity of the operator. A low blank wall is a very good place to build a bed against, in which the structure will be more of a "lean-to" than a "span roof." Mats may also be substituted for thatched hurdles, or asphalt may be better still; yet we question whether these things will keep out the amount of frost that straw does. At all events some covering must be used, and that of a cleanly and portable kind, and we are in hopes of hearing of some friend to horticulture introducing a something more suitable for that purpose than anything yet known; but, in the meantime, we must make the most we can of what we now possess.

It will easily suggest itself to the reader, that the above contrivance, or something similar to it, may be made to suit other vegetables as well as early carrots, such as *Potatoes*, *Radishes*, *Turnips*, as well as to rear such plants as *Lettuces*, *Cauliflowers*, *Celery*, &c. The two first-named it will most likely be necessary to sow in such a position, in order to succeed the last autumn-sown crop, when the latter happens (as is often the case) to suffer much during the winter. And, by-and-by, a bed of this kind might be made up for *French Beans*, but it is too early for them yet; besides, when they are planted in such a position, we advise their being raised in some warmer place, hardened off and planted out; but more of this anon. Only we must not omit to say that preparations must be made for planting *Potatoes* in such a way; the first crop we presume to be progressing under glass, but all after crops may be denied that assistance, unless it be made so as to be removed soon after without injury to the growing crop.

KITCHEN-GARDEN SUNDRIES.—*Mushroom beds* that have been some time in bearing, and show symptoms of ceasing to do so, will often be revived by a sound watering with tepid manure-water, and if heat can be applied in any shape they will usually rally again. Another bed may now be made where there exist modes of heating the place they are in, but we must not be understood as advising much heat to be applied to a mushroom-house in a general way, as that useful agent hurries them on too fast, which shortens the season of their duration, so that where there is not abundance of such accommodation, it is better to allow the beds in bearing to continue doing so, if they seem so disposed, without fire-heat, except in severe weather. Fresh beds made now must have double the allowance of spawn that those made in autumn required. After this time mushroom beds are rarely made up; the difficulty there is in overcoming the numerous pests they have to contend with about April, in the shape of maggots, &c., is such as to render them less cared for at that period. Attend to other things in the course of forcing, and subject fresh lots to that ordeal as they seem likely to be wanted, taking notice that the same amount of heat applied to *Sea-kale* will bring it to perfection "now" in two-thirds of the time it required in November and December; this, therefore, must regulate the young practitioner in any arrangements he may wish to make for especial occasions. A pan or two of *Celery* may now be sown, if not done before. *Capsicums*, also, might be put in now; but it is too early yet for *Tomatoes*. We need hardly advise the young cultivator

to look carefully over his *Cucumber plants*, and *Melons* too, that may be coming up; but we last week entered rather fully into the first processes necessary to these important crops, that we need not repeat it here. Take advantage of frosty mornings and dig over the ground intended for *Onions*, &c., so that it may get mellow before it be wanted. Look to the first-sown *Peas* which will now be showing themselves, as this is the most likely time for mice and other vermin finding them. A dredging of soot or wood-ashes will partly prevent their ravages, but trapping and other modes of extermination must be made use of now, which, however, ought to have been done before. Examine and house *Endive* that may be wanted; the mildness of the winter has enabled these crops to stand unscathed outdoors, but it is always better to have a supply on hand, as before this reaches the reader, the season may be as severe as it is now mild, and gardeners ought at all times to be prepared for emergencies. J. ROBSON.

CAN AURICULA CULTURE BE REVIVED?

As we began to grow Auriculas more than forty years ago under the instruction of poor old Gable, of the City Gardens, who managed to beat many country growers at the shows round the Metropolis, and, although we were no further from the smoke of London than Hackney, were pretty nearly as successful as the cunning old florist himself, we never could see the sense, nor the object, of those mysterious writers who made the Auricula one of the most disagreeable and difficult of all flowers to manage to everybody who followed their directions. Our compost, like old Gable's, was simple; our only contrivances, a common garden frame and light, and a few hand glasses.

In 1832, we published a simple, but certain practice, differing from all previous writers, and not a new idea has turned up among all the pretenders, who, without being able to grow the flower themselves with any degree of success, have, nevertheless, published, in their own names, or, at least, in works under their controul, directions founded on old and bold writings, of which we very fully exposed the fallacy. Some, indeed, republished our ideas in their own words, and, like the growers of Dahlias, Pansies, Tulips, and other florists' flowers, having tried and proved the safety and efficacy of our lessons, did not hesitate to publish treatises and instructions founded on *their* practice, which practice was adopted from our early instructions. But facts are stubborn things; they could not remove our early writings from the horticultural works in which they appeared, and the only credit they gained was among those who had not seen the original. However, for the present race of amateurs, which includes thousands who never look back for teachers, and who will read what is offered from day to day, we will, in as few words as possible, give the leading points in our successful practice.

As first and most important, we will give a few remarks on *compost*, which, instead of being formed of bullock's blood, night soil, sugar bakers' scum, and other filthy nostrums,* should be cow-dung, gathered up from pastures and rotted into mould, and loam from rotted turf, cut from a pasture as if for laying down on lawns; of the former one part, and of the latter two parts. In most cases this will be found light, porous, and proper; but if the loam should be too adhesive, and, when well mixed, binds too much, use only so much clean sand as will moderate the stiffness. Use in your pots one-fourth from the bottom of crocks (broken pots) for drainage, spread the roots out well, which is easily done by nearly filling the pot with compost before you

* We give specimens quoted by Loudon, page 848, "Encyclopædia of Gardening." "Three barrowfuls of goose-dung steeped in blood from butchers, three barrowfuls of sugar-bakers' scum, two barrowfuls of fine yellow loam."

Another: "Two barrowfuls of goose-dung steeped in blood, two barrowfuls of scum, two barrowfuls of night-soil, and two barrowfuls of fine yellow loam."

One more will be enough: "Four barrowfuls of loam steeped in night-soil and urine, two barrowfuls of goose-dung mixed with blood, two barrowfuls of scum, and two pecks of sea-sand."

How many ladies and gentlemen may be thus tempted to cultivate the Auricula, we leave others to judge.

insert the plant; and as you fill up, gently press the soil to the roots, and let the compost be finished up within half-an-inch of the top edge of the pot, and up to the collar of the plant, which is just below the base of the bottom leaves; place all the plants in a frame, of which the bottom must be impervious to water, and so contrived that the superabundance of moisture on watering may run off and not soak in, for damp is invariably fatal, and that which arises from moisture in the ground is the worst.

As we will suppose this to be the general potting time (unless we are buying plants out of the usual season), it may be well to intimate that the rules of those who grow for sale are adopted with a view to the increase of stock, and are no guide for amateurs. We have found that the best season for repotting is after the bloom has gone off, and the seed ripened; offsets have then grown large enough to detach from the main plants. The largest sized pots in which the plants should be grown are called 32s,—six inches, or a trifle more, across. All the plants should be turned out, and the soil shaken away, the main root examined, and, if too long, shortened; at all events, if there be any cankerous spots every morsel should be cut away; most of the long, matted fibres should be taken away also, and the repotting should be in sizes apportioned to the plants. Offsets must be all removed, whether rooted or not; those not rooted should be placed round the edges of pots, and put into the shade, under a hand-glass. The repotted plants should be watered with a fine rose, and shut up in the frames, shaded from the sun, for two or three days; then they may come under the general management, shaded for three or four hours from mid-day sun, but allowed all the air that can be given at other times, and be freely watered.

As winter approaches they must be cleared of their yellow leaves, and be watered seldom, but when they are watered they must not be watered sparingly, nor need they ever have moisture until the soil is nearly dry. In mild weather, all through the winter, let the glasses come right off, but in cold drying winds the glasses must only be tilted, and that on the side or end opposite to that on which the wind blows. In February stir the compost on the top of the pots as low as you can without touching the fibres, and throw the loose stuff out, and fill up, by way of top-dressing, with three parts of rotten cow-dung and one part sand, well rubbed together; fill up the pots to the base of the bottom leaves, and at all times, before and after, remove all yellow leaves. In the spring the plants may have genial warm showers, and be watered more freely, and particularly when their bloom trusses begin to show; at this time they must not be watered in the heart of the plant, and all through the winter season they must be covered to protect them from frost, and the covering not be removed, even by day, if the weather be severe.

As the blooms rise and show colour they will require to be removed to a sheltered situation, under a hand-glass, propped up so that the bottom shall be just below the edges of the pots; and here they must be shaded from all the mid-day sun, and carefully protected from cold, for a chill will check the opening, and they will never afterwards come flat. The number of pips must be reduced to eight or nine at the most, by removing carefully those most backward, and the remaining ones must be so spread, by putting little pellets of soft moss between the footstalks, that the pips shall not touch each other as they open, and they must be attended to daily. If they are too forward or too backward for the show, it is better to leave them alone than to attempt keeping them back or hastening them, until you are well acquainted with them, for the most experienced hands cannot help their being the worse for any artificial means; those who are used to them might advance them a little in a greenhouse, or by giving them a little more sun, or retard them by keeping them darker, but nothing can produce them so good as if they are unchecked and properly shaded. As they get nearly perfect you may again reduce the number to the best seven pips, and when they are put up to show the moss must be removed, and the pips so placed as the edges may touch, but not cover each other.

After the bloom is over they may be placed in a shady situation, and have all the weather until the potting time, when they may all undergo the operation of potting again. Rooted offsets, in small pots, may be placed in larger ones,

and those which have rooted round the edges of pots may be potted into small sizes. When you are inclined to try experiments, poultry dung, rotted into mould, is the best of all exciting materials, and may be either mixed with four times its quantity of loam and sand, in equal parts, as a top-dressing, or ten quarts of water to a pound, and given, as the blooms are colouring, as a liquid manure. But we recommend these experiments to be tried on three or four plants that can be spared, for much depends on the strength of the dung, which varies much in its different stages of decomposition; we never used it, although we have seen a neighbour do it, sometimes with questionable advantage, occasionally with mischief, and most assuredly when we came to the operation of repotting we had rarely a bit of canker to remove, while he would rarely find a plant without a touch of it. Growers for sale use exciting compost; they want rapid growth, and when the plants are sold it matters but little to them if the whole perish after the first bloom.

The only dealers near London now, are Groom, of Clapham, and Dickson, of Acre-lane, Brixton. In Lancashire they cultivate to some extent, and so far as we could judge from turning out their plants, they seem to grow in simple compost. Slater, of Manchester, and Holland, of Middleton, have both taken some pains with them. We should be rather anxious to show from the following, if we were beginning again:—Page's *Champion*, Fletcher's *Ne Plus Ultra*, Booth's *Freedom*, Leigh's *Col. Taylor for green edged*:—Dickson's *Unique*, Waterhouse's *Conqueror of Europe*, Oliver's *Lovely Anne*, Cheetham's *Lancashire Hero for grey edged*: Taylor's *Glory*, Thorpe's *Maypie*, Taylor's *Incomparable* and *Favourite for white edged*. But there are newer varieties, not yet in general cultivation, which will beat some of these.

WHAT OUGHT A GOOD AURICULA TO BE?—Round, flat, smooth in the edge; the tube round and well filled with thrum; the white pure, round, smooth, and thickly covered; the ground colour equal, dense, round, very slightly feathered, and the edge the same width as the white, and ground equal all round, and slightly feathered inwards; the pips all equal size, edge to edge, but not covering, not less than seven; truss, even though a little rounding on the face, all seen at once, and with a leaf, or leaves, behind, forming a green ground to the truss of flowers. Pairs should be alike in size but different in character; the truss well above the foliage, which should be large and healthy.

G. GLENNY.

COCHIN-CHINA FOWLS.

PERHAPS the following statement of the very extraordinary productiveness of this truly magnificent breed of fowls may be interesting to the readers of THE COTTAGE GARDENER; indeed, to that portion of them who are as fond of this description of poultry as myself, I am quite sure it will.

Mr. Thomas Nice, of Great Bradley, Suffolk, purchased a Cochin-China cock and pullet of Mr. Punchard, of Haverhill, on the 6th of January, 1851. They were placed at an off-farm of Mr. Nice's, under the care of Hannah Ashman, who lives there, and who says that the pullet laid the next day (probably had been laying before she left Mr. Punchard's), and after for twenty-two days, when she wanted to sit, but was not allowed; and in nine days after recommenced laying, laid twenty-three eggs, and was then allowed to sit. She hatched seven chickens, kept with them only three weeks, and began, and had been laying only a few days, when she met with an accident in the yard, and was killed. The first eggs were put under brood hens, as were such of the others as she did not sit upon, and in the whole thirty-four chickens were reared, seventeen cocks and seventeen pullets; eleven pullets out of the seventeen commenced laying in September, and between that time and Christmas laid upwards of six hundred eggs; the other six pullets have not yet laid. Hannah Ashman says, that she has for many years had the management of fowls, and that she is sure these new fowls have laid double the number of eggs in the same time, than any others she ever before had the care of. She is open to any inquiries that may personally be made of her.

J. H. PAYNE.

TO CORRESPONDENTS.

ERRATUM.—Page 226, 3 col. 3 line, change "slightly," into "slightly."

PLANTING VINEY (Grateful).—You may grow vines on the back wall to a single stem, but we are not assured that close spur-pruning will succeed in that situation, if you have them on single stems. They are never quite so fine as on the rafters, but sometimes very good. Your rafters must be close spurred, and close stopping practised, as a line of solar light must reach them between each two rafters. *Hambros*, by all means, for back wall. We have no personal knowledge of *Dutch Hambro*. *Tokays* are of similar habit to *Muscats*, some shyer still, all difficult grapes, all shy setters. If you plant any, put them where the heat enters the house. Your rafters may be expected to produce about fifteen pounds each, annually. Your back wall stems about eight. Plant clean canes from eyes of the preceding year, in the first week of March. Border material, one-half turfy and rather sandy loam, the other half lime and brick rubbish, charred sticks, and rubbish, coarse and rather fresh manure, and half-rotten leaf soil, in equal parts; the whole well blended in a coarse state, and placed on a subsoil where water can never accumulate.

SIZE OF BEEHIVES (J. Clark).—"A Country Curate" writes as follows:—"In reply to your correspondent I would observe, that his very sweeping condemnation of me and my book is founded, first of all, in a miscalculation of figures, based on his own loose and off-hand perusal of Mr. Taylor's remarks on the subject of bee-boxes; and, secondly, on his want of acquaintance with the now generally well-known internal economy of a hive of bees. Mr. Taylor I find (at page 41 of his *Bee-keeper's Manual*, fourth edition) recommends a size of box '11 inches square by 8 to 9 inches deep within-side,' which gives (not 1391 cubic inches, as Mr. Clark says, but) 1089 cubic inches for the larger, and for the smaller size (11 by 8) 968 cubic inches, which is less than the average of my four sizes by several 243 and 363 cubic inches, instead of 'a 1 of an inch less' only, as Mr. Clark states; and less even than the smallest of my hives (which contains 1152 cubic inches) by several 69 and 184 cubic inches! So much for the difference in actual capacity between my hives and those of Mr. Taylor. But, in fact, there is (or rather was) a still greater difference between them than would at first be apparent to a cursory reader of my book. Every intelligent bee-keeper is well aware that broad and shallow boxes, or hives, are more suitable (other things being alike) for breeding purposes than narrow and lofty hives. For instance: a box 13 inches square, by 8 or even 7 inches high, is capable, in general, of rearing a much larger brood of bees than one of 10 inches square by 13 or even 14 inches high, although the latter box (10 by 14) would contain 217 cubic inches more than the former. For it is pretty well ascertained that the queen bee prefers to breed low down, and far and wide, rather than high up in the hive; or more correctly speaking, that the workers always prefer to store honey in the upper parts of the hive. Mr. Taylor has of late acceded more fully than ever to the truth of this principle, and wisely altered the dimensions of his hives accordingly, viz., by increasing their breadth and diminishing their depth. His hives, as exhibited in the Crystal Palace, are actually a quarter-of-an-inch broader than the very broadest of my hives, as given in Mr. Clark's schedule!—being, in fact, of 40 cubic inches more capacity (instead of 'full 120 cubic inches less') than his former hive, thought by me to be too small! and, in fact, much more than '40 cubic inches greater,' because it is so much (22 inches every way) broader than his former hive; and I repeat—it is breadth, and not height, which should be aimed at in breeding-hives. I confess that (if I may venture to have an opinion of my own) I should like Mr. Taylor's new hive better if it were an inch deeper than it is; but every man to his own taste. As Mr. Taylor's improvements in the dimensions of his boxes (which Mr. Payne also approves and follows) have been given to the public (so far as I know) since the 'English Bee-keeper' issued from the press, I may at least congratulate myself that the principle upon which I have based my observations on the size of boxes in that book—a principle, be it observed, laid down by no less an authority than De Gelieu, the celebrated Swiss apiarist—so far from being condemned by our living standard apiarist authorities, has been of late admitted to be true by them more fully than ever, as is evidenced by their having so lately modified their hives in stricter accordance with that principle. In conclusion I would add, that your correspondent must choose for himself in respect to the size of his boxes; for there is not, I am persuaded, a single apiarist of note who would presume, in a matter so confessedly uncertain, to lay down the law positively as to any particular size being the proper size, from which there should be no deviation. And I am sure that both Mr. Taylor and Mr. Payne would do me the justice to say that my opinion upon the subject, as given in my book (whether they agree with me or not), is at least as reasonable and as likely to be as good an opinion as their own, in spite of the latitude which I have allowed to every bee-keeper in the choice of a certain size for his bee-boxes. As some who will read these remarks may still be puzzled to understand the superiority of broad and shallow over deep and narrow hives, they being of the same, or of nearly the same, capacity—seeing that if bees have a given quantity of honey to store away, they will deposit it just as readily in broad as in deep hives, and, therefore, there would be just as much space for breeding (and no more) left in the one hive as in the other—I would explain that I am supposing *supers*, or *glasses*, to be used, with several, and rather large, holes in the top of the breeding-hive communicating with them. Now in this case, where the box is broad and shallow, it will be found, as a general rule, that the bees will commence storing honey in the super with far greater readiness than where the stock-hive is deep and narrow—in other words, the shallower the breeding-hive is, the sooner will the bees be tempted to carry up and deposit honey in an upper story, if care be taken to supply them with it at the proper season; whence not only will the bee-master derive greater immediate profit, but also the queen will have a much freer scope, and a more abundant space for laying eggs in that part of the hive most suitable for the purpose. This is an axiom in bee-lore which I imagine no one will pretend to deny, and if it be correct, it stands to reason that my hive of 13 inches square by 8 deep, or Mr. Taylor's of 13½ by 7 (the difference is not so very great) are the best breeding bee-boxes yet recommended to the public. I should prefer my own, from a fear lest the bees should store too much in the super, and not enough in the breeding box for their winter consumption." We will only add, that

Mr. Clark, however unintentionally, did not write in that courteous style usual when information is sought for.

MALAY AND COCHIN-CHINA FOWLS.—*Philontho* asks, "Are Cochin-China fowls as large as the real Malays, and equally good as sitters and nurses, and are they more peaceable and better layers?" and *Anater Bonn* replies, "I must, in the first place, repeat what I have often said before, that my opinion is the experience of one person only, and that I scrupulously avoid writing from hearsay. My present experience lies among my favourite Cochin-Chinas; but in spite of my acknowledged preference for them, I notice with regret how very much the splendid Malay breed of poultry seems to be going out of fashion, so much so, indeed, that at the recent show at Birmingham, there were no grown fowls of this variety considered worthy of a first prize. I believe, in weight, the true Malay would bear the palm from the true Cochin-China; and I think it would be a question worth the attention of those persons who have had many years' experience with both, whether many of the heaviest Cochin-China fowls,—the imported, as well as some which have been bred here,—do not, on this account, owe some gratitude to the Malay. Respecting the weight of Cochin-China fowls, I perfectly coincide with the Rev. E. S. Dixon, when he says "it is a mistake to suppose, in forming a judgment on the merits of this breed, that mere weight is, or ought to be, the main qualification;" for, although great weight is a characteristic and a great merit in these capital creatures, it certainly should not be considered alone, or at the expense of beauty in shape and colour, softness and abundance of the fluff, and other distinguishing marks of the breed; at least, this is my opinion. As sitters and nurses, the Cochin-China hen is decidedly superior to the Malay, whose length of limb makes her an awkward sitter, at the same time that it renders the task irksome to herself. I dare not affirm that I have had perfectly true bred Malay fowls, for I am told that these are confined to a very few owners in the country, but I have known what I thought a good hen lay two days out of three. I find my Cochin-China hens lay every day, or nearly so. The Cochin-China hens are pretty, mild, peaceable creatures. A good Cochin-China cock, like any other good cock, will have his own way among his subjects, and there is not much peace in the hen-yard until he gets it; but, so far as my own experience goes, when he has once gained the mastery, he is satisfied, and allows things to go on quietly. One time this year, I had eighteen Cochin-China cocks put up in a yard; I do not think this arrangement would have answered if they had been eighteen Malays, particularly as there were a few pullets and common hens confined with them. I noticed that one of the elder ones soon made himself chief among them, and retained his position. Many authors consider the Malay fowl to be of inferior quality for the use of the table, both in flavour and appearance. They are certainly not so good as the Cochin-China either in these particulars or in plumpness of form, the length of their legs giving them rather an awkward appearance when trussed and cooking. The Cochin-China fowls' eggs have a very delicate flavour, but I think they are hardly so large as those of the Malay."

BEDDING ROSES (Queen Mab).—To have roses grafted or not grafted for a bed, is entirely a matter of taste, either way will do. There is not a yellow bedding rose at all. Those Tea ones we named the other day require such protection, that not one place out of a hundred suits them. *Harrisonii* makes a good bed for a month, and so does the *Persian yellow*, and the old *Austrian*, but what can be done with them for the rest of the season? Any time after the middle of February will do to renew your *American bed*.

FRUIT-TREES FOR NEW ZEALAND (Roses).—"The best method" of sending Apple, Pear, Peach, Nectarine, Apricot, Gooseberry, Currant, and Raspberry, and all other fruits, to New Zealand, is, unquestionably, to send a good packet of seeds of as many kinds as you can procure, and run the chance of the seedlings proving good. The next best method, if not the best, is to plant very small plants in strong cases, to be covered as Wardian cases; these should be planted in the spring, and sent off next October. Parties going out now, or soon, might try a case or two of trees packed close in dry moss or sawdust.

ROSES FOR WALL (E. S. R.).—To cover a brick wall a yard high, and a wooden trellis over it two feet high, climbing roses are too strong, unless you were to plant them twenty feet or more apart; if the situation is good, the finer pillar roses we named the other day are the very sorts for you. Put them in four feet apart, water them abundantly next summer, and you will soon be delighted with them. The *Banksians* will never do much good there, but leave them for a couple of years till the others come up, and as the *Petit Perpetuelle* is there, leave it also for a while, and carry it right and left along the top of the rails—at any rate do not attempt to confine it to seven feet high, or if you do, you shall see but very few flowers on it. If the situation is exposed, or too much confined by trees or buildings, why then you must be content with our list of hybrid Chinas and Bourbons, beginning with *Chenabottle*, &c. &c.

CAPE JASMINE CUTTINGS (M. D. S.).—To grow this from cuttings, a cucumber-bed, or some hotbed is necessary; then about the end of March make cuttings of the young top shoots, about four inches long, and cutting close under the bottom joint. Plant them very firm in a small pot, well drained, and filled with one-half sand, and the rest peat, with a layer of clean sand on the top. Water them well after planting. A bell-glass or a little hand-glass put over them will hasten the roots.

BULBS (H. W.).—The *Ornithoglossum* and *Isias* are frame or greenhouse plants. The *Geomera sebrina* a real stove plant. Without "a house or pit" such things are of no use to you. The Chilean *Alestromeria* may be planted like so many Crocuses. If you want a few large patches at once, plant so many roots together; any number, from two to twenty, will do; or if you prefer more plants to size of patches, plant single roots only; for an ordinary patch, five roots planted in a circle, with the odd one in the centre, is a fair method; but all such arrangements depend on individual taste.

FLOWER-SEEDS FOR THE NORTH OF INDIA (M. M. G.).—Verbena, Calceolaria, Petunia, Penstemon, Tigridia, Lobelia, the whole race of Geraniums, Maurandia, Echeveria, Lophospermum, Mesembryanthemum, Marigolds, Alestromeria, Lupinus, Delphinium, and, indeed, any other kind we grow here may be tried. Also all the greenhouse Acacias and other things from the Cape, Australia, Mexico, &c., which we grow or winter in the greenhouse. For, to tell the truth, we are all in the dark as to what is best for the North of India, either as

flowers, fruits, or vegetables, and much depends on the skill of those to whom we send.

ROSES TO COVER HIGH WALLS (K.).—The first thing is to make a good border round the walls twenty inches deep at least, and four feet wide, and after planting the Roses, to put a layer of gorse bushes, or a net, all over the border to keep the fowls from scratching it up for the first two years. *Felicite Perpetuelle*, *Garland*, *Myrantes*, *Princess Louise* and *Rugs* are the best Roses for the twenty-foot high walls; for the ten-foot wall, *Crimson Boursault* and *Laure Doucet*, with *Tyrina Purple* and *Gloire de Rosanene*, all round to keep the bottom full. Read over again what Mr. Beaton said lately on climbing Roses. Young *Spruce Fir*, six or seven feet high, are the best to plant in a fowl-yard; the roots to be protected from the birds, and when the trees are high enough stop their leaders.

BEARDED POLISH FOWLS.—*Inrubator* says, "I think it will interest your readers (such as were not present at the Birmingham Show) to inform them, that in the Golden Poland Fowl Class, prizes were in three instances awarded to birds with 'muffs or beards' under the beak. This decision will, I think, not only interest those who keep this particular variety, but all poultry fanciers, as the judges have, by this decision, violated a rule laid down by two modern authors on the subject of poultry, as the following extracts from the works of the Rev. E. S. Dixon and Mr. Nolan will show (the Rev. E. S. Dixon, I see, was one of the judges, I presume, therefore, his opinion was outweighed by the other three). Speaking of the Golden Poland, the former gentleman observes, p. 325, 'Many of them are disfigured by a muff or beard, but no such bird should be allowed the *entree* to the poultry-yard, but be dispatched at once to the fattening-coop.' 'Nolan on Poultry' says, 'One of the distinguishing characteristics of the Spangled Poland Fowl, is the absence of the ruff under the beak.' Comment, I think, is almost unnecessary; but, I may add, if the judges break through a rule, laid down by authors for the guidance of poultry fanciers, in one case, it requires no great stretch of the imagination to suppose they will do so in others. I think you will agree with me, that it must have been very vexing to those exhibitors who, acting upon the above advice, had 'dispatched to the fattening-coop' numerous birds which (independently of the disfigurement of the 'ruff') were perfection, to see the very birds which they had been weeding out carrying off all the prizes. Although not an exhibitor of this variety this year myself, I hope to do so next; but I should like to know the opinion of your readers on this point, if you would kindly submit it to them. My birds (as you will already have gleaned) are free from the ruff, and if they coincide with the judges, I, of course, shall stand no chance next year."

[*Inrubator* has acted judiciously in consigning all his bearded Polish fowls to the fattening-coop. Had he sent clean-chinned specimens, good in other respects, to Birmingham, he would not have found them slighted by the judges. Great misunderstanding has arisen from Nolan's and Richardson's original confusion between Hamburg and Polish fowls; but bearded Polish are Polish still. It is probable that next year bearded birds will be relentlessly swept by the judges into the class for odds and ends, and then, if any make their appearance with beards reaching even to the ground, they can be dealt with according to their merits.—1.]

BULBS IN POTS (Claude).—It is not safe now, to make a bed of Hyacinths, Anemones, and Gladioli, that are growing in pots. If the leaves have grown a few inches in a mild atmosphere, the first hard frost will kill them. Keep them very cool to the middle of February, and then you may plant them out. The proper greenhouse heat, by fire heat, is 40° during frost, and from 35° to 45°, according to the weather, when it is not frosty.

NAME OF INSECT (Echinus).—The small white powdery insect found upon your brocoli and cabbages, in the *Aleurodes prolella*, which Linnaeus mistook for a little moth, but which belongs to the order Hemiptera, and is closely allied to the aphides, having similar habits with those pests of the gardeners, and which can only be destroyed by the same means as would be applied against the green fly in similar situations. We think you wrong in concluding that the same insects attack your pears. Can you send us some of the insects from these trees?

WEEDY GARDEN (G. Trobridge).—If the weeds are perennials, such as Couch Grass, Docks, &c., fork them out thoroughly, and burn them; if only annual weeds, such as Groundsel, dig them in.

AIR MOISTURE AND TEMPERATURE IN STOVE (A. B.).—Keep pans of water upon the flue, and water the paths morning and evening. The temperature of your plant stove should be, by day, in spring, 65°; summer, 70°; autumn, 60°; winter, 50°, but ten degrees higher derived from sunshine, will be well. By night, spring, 55°; summer, 55°; autumn, 50°; winter, 45°. You had better go to some first-rate nurseryman, and select such plants as suit your taste and pocket.

TELEKIA SPECIOSA (W. C.).—This is a hardy herbaceous perennial. The plants raised by you from seed in 1850 will probably flower in the open border in July without any particular treatment. Do not let the soil be rich. The *Broomham Hall Melon* is a very good variety.

CALF DISEASED (H. H.).—The scour, or diarrhoea, arises from bad management; the animal has been subjected to sudden changes of food and temperature, and as it is too weak to rise without help, it will probably die. Shut it up in a warm house; mix together four ounces of prepared chalk, powdered canella bark one ounce, laudanum one ounce, and water one pint. Give, as the calf is about a year old, a tablespoonful three times daily. Our correspondent wishes for some very fine *Red-spangled Dorking Fowls*. Six pounds is a good weight for an *Aylesbury Duck*, but the prize birds at the Birmingham show averaged more than eight pounds each.

CINERARIA MARITIMA AND AGERATUM MEXICANUM.—If S. F. will forward his address on an envelope, and two postage stamps, we will furnish him with the address of a party who will supply him.

SALVIA NEMOROSA.—*Apiphilus* may obtain any number of plants in February by applying to N. S. Hodson, *Botanic Garden, Bury St. Edmunds*, where it is cultivated extensively as a bedding plant, producing a succession of bloom during the summer and autumn, by cutting off the stems close to the roots when done flowering, and leaving the young shoots to flower late in the season.

YELLOW-BERRIED HOLLY (Margaret).—This, and all the numerous kinds with variegated leaves, are merely varieties of the common Holly. The yellow-berried is mentioned as long ago as by Ray. The difference of colour in the berries, is mentioned in the seventh edition of *Withering*, in Smith's *English Flora*, &c. It can be propagated by grafting on the red-berried. An answer to your other query next week.

POTTING ROSES.—W. M. N. says:—"I have some roses that were put into 4-inch pots last September, after having been nursed in a bed of very rich earth for two seasons. Now, would it be right for me to shift them into larger ones in the spring, as I want them for gentle forcing?" It will be quite right for you to pot your roses, but not unless you can let it be done immediately. You may lay lights for a frame of any hot-house builder.

VARIOUS QUERIES (H. T. N.).—*Dipladenia crassinoda* three years old, and getting too large. Prune the shoots back to within a bud or two of the older wood, when the young shoots have started. You may examine the roots, remove a portion of the soil, and add fresh, and see that the drainage is all right. If you are sure on the latter point, and find a difficulty from the trellis in shifting, you may pick off some soil from the surface, and top dress. Equal portions of sandy peat and fibry loam, with a portion of charcoal will do. If you have kept your plant growing during winter, and it is now full of young healthy shoots, you had better let them alone, as you would both weaken and retard your plant by pruning it. *Stephanotis floribunda*. This will do well in the same pot for years, with top dressing. You must not have it too thick on the trellis. Though it frequently blooms well on last summer's shoots, we have had it do better still by thinning these well out after blooming, and then the young shoots kept blooming all the summer and autumn. *Rondeletia speciosa*. Unless in extreme cases, we would never prune this into the old wood, but when finished flowering, and allowed to rest a while, we would prune it back near to the old wood, so that a bud was left.

EPACRIS (J. C.).—These, going out of flower, we would not cut down now, as the shoots will strengthen the roots, but in a month or six weeks time it should be done. We generally prefer seeing them produce their bloom on long shoots, a mass of flower from end to end. If this is your plan, and, indeed, whatever be your mode of flowering them, you cannot err in pruning back the shoots that bloomed to from one to three inches from the older wood. The plants must be kept closer and warmer afterwards, until they break freely.

BOILER FOR HEATING TANK (Ibid).—We do not know anything of the patented boiler, holding about four quarts, and looking like a block of iron, though there is nothing unlikely in its answering; but, take our word for it, that all things considered the simplest and cheapest will be the best for your purpose. Your tank is 40 ft. by 3 ft. 6 in., and for that, a small boiler will be sufficient. We cannot be decisive as to expense; there are so many things to be considered. A tradesman had a fair profit in supplying a nurseryman with a small boiler, with four flanges, for 35s, but then he would not do the same for us. In this case, the water was conveyed to and from the tank in lead pipes. If your tank is shallow (and there is no necessity for having it more than two or three inches), then we have no doubt but that any boiler-maker would supply you with one for something like £3 10s.

BRIDAL BOUQUETS.—E. R., the Wife of a Clergyman, asks, "Why Orange blossoms form a characteristic part of the dress of a bride, and why the Acorn is assigned to the gentlemen's bouquets forming the wedding guests?" It is fashion only that determines the flowers assigned to the bride; and Orange-blossoms have been adopted from the French, who, from time immemorial, crowned with them the new-married pair. In Germany, the crown is of Myrtle. In Switzerland, it is of mixed artificial flowers. At Rome, and even in England, as late as the time of Henry VIII, the bride's garland was of Wheat-ears. Herriek tells us that bridal flowers were "roses and lucky four-leaved grass;" and Hackett speaks of Primroses, Maiden's-blushes, and Violets, as used upon the occasion. Rosemary was also used at weddings, as well as at funerals, for, in an old ballad, "The Bride's Good-morrow," it is said—

Young men and maids do ready stand,
With sweet Rosemary in their hand,
A perfect token of your virgin life.

The bridal garland, says Leland, "betokeneth gladness, and the dignity of wedlock." Of the oak, or of its acorn, as a bridal plant, we know nothing.

WEEDY LAWN (P. S.).—What you sent as a specimen is moss, and we do not object to a mossy lawn. To extract the dandelions and daisies, employ a woman to take them up by the roots, with a spud made of a broad chisel somewhat curved, and its edge made into teeth thus—VVV. Any blacksmith can make this for you. If you wish to destroy the moss, try this remedy, furnished us by A. Worcestershire Man, which he says his "experience" shews to be effectual:—"If you wish to destroy moss on a grass-plot, get some hurdles, and pen some sheep therein, moving the hurdles as the sheep tread the grass-plot bare. When the grass is apparently well trodden into the earth all over the plot, remove both sheep and hurdles, and the moss will disappear when the grass again springs up."

IRON STOVES (A Worcestershire Man).—If you send us any "proofs that iron stoves are troublesome and inexpedient," you will find we have no more hesitation in inserting your information than we have that which we give about hot-water boilers and flues. All that we require upon any subject are facts told *inoffensively*.

RHUBARB FORCING (J. C.).—Cover the roots with earth whilst forcing. If you try both modes, with equally strong roots, you will find the difference. Flowers would not do in your heated cellar, owing to the deficient light.

NAME OF PLANT (R. P.).—It is the Sea Ragwort, *Cineraria maritima*. We know of no pamphlet about rearing young pheasants.

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WEEKLY CALENDAR.

M W D D	JAN. 29—FEB. 4, 1852	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
		Barometer.	Thermo.	Wind.	Rain in In.						
29 Th		29.722—29.463	52—32	S.W.	20	46 a. 7	41 a. 4	0 21	☾	13 22	29
30 F	KING CHARLES I. MART. 1649.	29.520—29.352	46—30	S.W.	39	45	42	1 28	9	13 32	30
31 S	Hilary Term ends.	29.389—29.194	45—28	S.W.	67	43	44	2 36	10	13 41	31
1 SUN	4 SUNDAY AFTER EPIPHANY.	29.470—29.434	43—29	N.E.	04	42	46	3 m 45	11	13 50	32
2 M	PURIF. CANDL. DAY.	29.575—29.513	40—22	N.E.	10	41	48	4 53	12	13 58	33
3 Tu	Blasc.	29.567—29.490	44—25	S.	06	39	49	5 55	13	14 5	34
4 W	Musca Tenax seen.	29.939—29.793	45—23	N.W.	—	37	51	6 50	14	14 11	35

BRITISH WILD FLOWERS.

CROWFOOTS—RANUNCULACEÆ.

RANUNCULUS.

Ranunculus was the Roman, and *Batrachion* the Greek name, for our common Crowfoot, or Butter-cup; and, as both those classical names refer to the frog, it is pretty evident that the intention was to refer to the marsh-loving habit of the plant, and its consequent companionship with that animal. It belongs to the Class and Order *Polyandria Polygynia* of the Linnæan system.

1. LEAVES UNCUT.



GENERIC CHARACTERS.—*Cal.* inferior, of 5, rarely fewer, egg-shaped, concave, somewhat coloured, deciduous leaves. *Pet.* 5, rarely 8 or 10, blunt, polished, with short broad claws. *Nect.* a pore towards the base of each petal, in several instances covered by a scale. *Filam.* numerous, rarely but 5, not half the length of the petals. *Anth.* roundish, linear, or heart-shaped, terminal, erect, of 2 cells, bursting at the outer edges. *Germ.* superior, numerous, collected into a head. *Styles* none. *Stigmas* small, reflexed. *Seeds* numerous, egg-shaped, compressed, either smooth, channelled, pimpled, or prickly, each tipped with a point, or hook.

There are sixteen species, natives of the British Isles. These have been divided into two sections—1. Those with uncut or simple leaves. 2. Those with lobed, or cut leaves.

RANUNCULUS FLAMMULA: Lesser Spear-wort Crowfoot.—Ray says that its specific name, *flammula*, was derived from the Latin *flammeus*, burning, because of the acrid, blistering quality of the plant.

There are three varieties of this species: *a*, has broader, plantain-like leaves, hairy at the edges, and is found in Ireland; *b*, has the edges of the leaves remarkably toothed; and *c*, has a creeping stem, putting forth roots from each joint. No plant varies more than *R. flammula*, according to the soil and situation in which it is growing. In low, moist situations it is tall and almost perfectly erect, but on mountain, dry soils, it is small and creeping.

DESCRIPTION.—*Roots* of many long, simple fibres, partly from the lower joints of the stem. *Herb* generally smooth. *Stem* more or less reclining, partly, or entirely, decumbent, from 6 to 18 inches long, branched, leafy, hollow; De Candolle says "solid;" it is often hairy in the upper part. *Leaves* on channelled clasping footstalks, alternate, spear-head-like, varying greatly in breadth, sometimes egg-shaped. *Fl.* opposite to the leaves, as well as terminal, on round stalks, without bracteas. *Pet.* of a golden yellow. *Nect.* minute. *Seeds* small, smooth at the sides. *Calyx* often slightly hairy.

PLACES WHERE FOUND.—Plentifully in marshy places, especially in boggy parts of heaths and commons.

TIME OF FLOWERING.—June to September.

USES.—It is very acrid. Applied externally it inflames and blisters the skin, and is so employed in the Highlands and Islands of Jura, where the bruised leaves are applied in a limpet shell. Horses eat it. Cows, sheep, goats, and swine refuse it. Its acrimony rises in distillation. Some years ago a man travelled through several parts of England administering emetics, which, like white vitriol, operated the instant they were swallowed. The distilled water of this plant was his medicine: and, from the experience Dr. Withering had of it, he felt authorised to assert, that in the case of poison being swallowed, or other circumstances occurring, in which it is desirable to produce instantaneous vomiting, it is preferable to any other medicine yet known, and does not excite those painful contractions in the upper part of the stomach which white vitriol sometimes does, thereby defeating the intention for which it was given. Unfortunately he does not specify the dose to be employed. —*Smith's English Flora. Withering. Martyn's Miller's Dict. Ray's Hist.*

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 44.1° and 31.8° respectively. The greatest heat, 56°, occurred on the 3rd in 1833; and the lowest cold, 18° on the 30th in 1827. During the period 102 days were fine, and on 73 rain fell.

PRUNING is one of the most difficult of gardening practices, though usually performed by jobbing gardeners with an indiscriminate application of the knife, having but one guiding principle or object,—making all look neat.

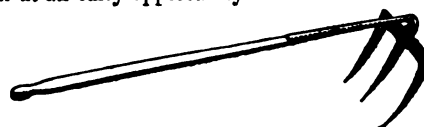
The necessity for more discrimination in pruning, is evident from the leading facts, that some plants bear on their old wood some on the previous year's shoots;

some on spurs, and some on buds issuing directly from the laterals. Yet these are not the only considerations to be kept in remembrance as we apply the pruning-knife, for, if the branches are too much reduced in number, an excessive development of leaves is caused, and the production of blossom is proportionately prevented. Nor is the season at which a tree is pruned without its influence. Indeed, so far from it, that the

season for pruning ought to be regulated in some degree by the strength of the tree; for although, as a general rule, the operation should not take place until the fall of the leaf indicates that vegetation has ceased, yet, if the tree be weak, it may be often performed with advantage a little earlier, but still so late in the autumn as to prevent the protrusion of fresh shoots. This reduction of the branches before the tree has finished vegetating directs a greater supply of sap to those remaining, and stores up in them the supply for increased growth next season. If the production of spurs is the object of pruning, a branch should be pruned so as to leave a stump; because, as the sap supplied to the branch will be concentrated upon those buds remaining at its extremity, these will be productive of shoots, though otherwise they would remain dormant, it being the general habit of plants, first to develop and mature parts that are furthest from the roots. It is thus the *Filbert* is induced to put forth an abundance of young bearing wood, for its fruit is borne on the annual shoots, and similar treatment to a less severe extent is practised upon wall-fruit.

We have been led to these observations by the following suggestive queries sent by a correspondent (*C. K. C.*)—"Does *Roupellia grata* bloom upon the wood of the current year, or upon that formed in the previous summer? Also, at what time does it generally flower? Should it be cut back when starting?" The true name of this splendid plant is *Strophanthus Stanleyanus*, a genus named by Decandolle, and is one of the finest of the stove Dogbanes which Africa has yet produced. Dogbanes (*Apocynaceæ*), in general, flower on the current year's growth, as *Allamandas*, *Cerberas*, *Plumerias*, *Beaumontia*, *Echites*, *Oleanders*, and many more. Yet it is not safe to trust to the general rule in pruning these Dogbanes. *Allamanda* may be pruned in the spring down to one joint, and even the whole of last year's wood may be cut out, and yet the young wood will flower before the season is out. But if we were to apply this rule to the *Oleanders*, not one out of ten of them would flower at all. *Strophanthus* flowers at the end of the current year's shoots, after the middle of summer, but it should not be pruned close for flowering. If *C. K. C.*'s plant is young, we would prune it down to two joints of last year's wood, in order, at first, to get a bushy growth, and afterwards prune from two to six or eight joints, according to their strength. We should like this experiment also to be tried:—Let some shoots that are neither *weak* nor *too strong* go without any pruning, to see if these flower more freely, as the experience of gardeners has not yet decided the point,—seeing that *Strophanthus*, alias *Roupellia*, comes nearest to the *Oleanders* of all the Dogbanes. We incline to the belief that unpruned shoots, if very well-ripened, will flower the freest, as in the *Oleanders*. The plant is supposed to be a shy bloomer. Young ones ought to have a brisk bottom-heat of 80° from March to Midsummer, and, if in dung-heat, all the better.—*B. J.*

IN answer to our request for information as to local gardening implements, the following is a portion of another communication, the remainder of which shall appear at an early opportunity.



No. 1.—Length of handle, including iron socket, 4 feet 9 inches; diameter of handle, 1½ inch; width of the head, 6½ inches; length of curved teeth, or prongs, 6½ inches.

At page 362, vol. vi., of *THE COTTAGE GARDENER*, one of my pet implements (No. 1) is described by a correspondent, and I am really happy to find so useful an instrument is known further a-field. I send you a drawing of my own, and will entail upon you the origin of the idea, and how it came to pass. Nine years ago, and some two or three hundred yards from the house where I was then residing, a river (the Corve, near Ludlow) wended its circuitous course. Poor river! good old Isaac Walton, in his piscatory day, I fancy, could not have inveigled finer trout, or conjured happier thoughts, than I have done by your ever-to-be-remembered sparkling streams and silent shades.

At one part, occasioned by two stone walls, which formerly served to dam back the water to work a mill, the river became contracted, and this circumstance was taken advantage of to place an eel-basket there; this basket pressed the side of one of the walls, as it lay some five feet below the edge of the bank, and required myself with an assistant each time to raise it. The means adopted was to attach a strong rope to the smaller end, and the tines of a two-pronged stable-fork were bent to an angle for the purpose of hooking on to the other. One autumn morning, on my return from the eel-basket, when crossing the lawn with this bent fork in my hand, I made use of it, upon the spur of the moment, to stir the surface of a flower-bed. The workmanship and capability of the thing was palpable, and by no means to be given up so; the village blacksmith, my always friend, was consulted immediately, when the result was an instrument very nearly answering the description of the drawing sent. The premier implement—as I grow everything on the drill or single row system—I had so constructed that the centre tine, by unscrewing a nut from the top beam, could be taken out at pleasure, in order, that when working amongst smaller crops, where the width between the drills would not admit of the three tines, by relieving the centre one, the two spaces could be scarified by the outside tines, allowing, at the same time, the row of low-growing onions, or what-nots, to escape between them. It was all very well so far as this was concerned, though, and a great objection it was, the centre tine, by not being a fixture, and the constant use of the implement, became loosened, and made the tool disagreeable to work with. I therefore, when I came here, got the smith to make a new one, as per drawing; it is made heavier in the beam than the first, which relieves the muscles and strain upon one's arms. By walking backwards it is quite astonishing the ground that can be scarified by this tool; as regards weeds, it is their most destructive enemy; they have not the slightest chance to grow, it worries them to death where it is allowed to take its repeated soil-stirring course. The depth required can be regulated according to the force employed, from one inch to seven, and no footmarks are left to mar the appearance of the work. For a frosty morning, flakes of frozen soil, very icebergs in miniature, can be exposed by it, in inconceivable confusion, to the action of the atmosphere. It stands first on my list as a useful implement, one that I could not dispense with. It has quietly placed my hoes upon the shelf, and the rake will soon bear them company.



No. 2.—Length of handle, including iron socket, 4½ feet; handle of deal, and 1 inch diameter. The handle is marked in feet and inches. Length of blade, 4½ inches; breadth round, from edge to edge, 2 inches.

No. 2 is an offspring from an implement I saw in the garden of J. Vaux, Esq., at Ryde, in the Isle of Wight, which, were I to write a book on its capabilities, I should not consider my time misspent as regards my own personal conviction; though what that may be, or others might weary themselves to read, are quite different affairs. I will, on this consideration, concisely recommend it as a very useful little instrument as a garden measure; a drill for small seeds; for soil stirring amongst tiny crops; insinuating amongst flowers; assisting to gather fruits; and by no means least, as a light handy implement for a lady's use.

UPWARDS AND ONWARDS.

GARDENING GOSSIP.

ONE of the most readable books of travels that has recently fallen in our way is *A Trip to Mexico*, "By a Barrister." The author does not, like a judge we could name, gloat over the good dinners he consumed, nor record them as some of the most interesting events of his journeying. Yet "A Barrister" has a keen eye to observe, and a sketchy pen to describe, all that came within notice; nor are the plants and gardening of Mexico exceptions. We think that every one will view with more interest the American Aloe (*Agave Americana*) after reading the following:—

"We passed through the centre of a district in which the Maguey, or large American Aloe, is extensively cultivated for the manufacture of Pulque. Pulque is the common drink of all Mexicans, and answers to our beer, though more intoxicating. All who once get accustomed to the smell and taste like it much, and it is even said to become necessary to people after they have used it for many years. When the Republic was first established, many old Spaniards, threatened with expulsion, petitioned the National Assembly to allow them to remain in Mexico, the groundwork of the petition being that they had been so long accustomed to drink Pulque (not procurable in Spain), that their lives would be endangered if they left it off. The manner of making this drink is as follows. When the aloe is just on the point of throwing up its huge stem from its coronet of leaves, deep amidst which its broad basis had been for some time forming, the farmer, or gardener, scoops out the whole pith, leaving the outer rind, and thus making, inside the circle of leaves, a bowl-like cavity about two feet deep and eighteen inches wide, according to the size of the plant. This cavity is soon filled with the sap which should have gone to nourish the stalk, and, as it flows, is removed several times daily for some months, or as long as the tap yields. A portion of this juice (called honey-water, *aguamiel*) is set apart to ferment, and act as a sort of leaven or yeast for the rest. This is called Madre-Pulque, the mother of Pulque, and when completely prepared (which it is in about a fortnight), a small portion of it is added to the skins or tubs containing the fresh aguamiel, and sets it fermenting in a day or so. A large plant is said to yield from ten to fifteen pints daily, and this for months. Others vary the process by putting a small quantity of *mescal* into the cavity in the plant, to mix with the sap as it flows in; and this seems to answer very well. This process of milking the Aloe is, as might be expected, a fatal one to the plant, but before it dies it always throws out shoots which keep up the stock. The fermentation is usually conducted in skins, and as soon as this is over the Pulque is fit for drinking. To strangers both the taste and smell are horrible, something of the style of rotten eggs; but one soon gets accustomed to the flavour. The fresh sap, or aguamiel, is often drunk unprepared, but it is too humble a tipple to be generally patronised. These Aloes are often of immense size. The common leaves are eight or ten feet in length, more than a foot in width, and thick in proportion. The stem often shoots up to twenty or thirty feet, or more, and is as thick as a man's body."

We noticed at page 297 that the disease which has so afflicted our *Potatoes* is unknown in the Arctic regions;

and it is curious that, in Mexico, the coldest situation yields the best tubers. "Our resting-place," says "A Barrister,"

"a dull, little town, called Peroté, was reached about four o'clock in the afternoon, after a trifling descent into the high table-land plain in which it stands. This little place has the reputation of being the dullest, coldest, and most miserable residence of any in Mexico, and I am not inclined to disagree with those who abuse it. We had miserable quarters there. I must, however, bear witness to one thing, in which Peroté surpasses all the rest of Mexico that I saw, viz., the goodness of its potatoes. These are here capital, equal to the best in England, whilst, in general, throughout Mexico, they are wretched, seldom bigger than walnuts."

It is an error we too often fall into of merely saying that a plant is a native of Mexico—a statement far too vague to be of use to the gardener, as will appear from the following extract, testifying that there are really three regions in Mexico, each having a distinct climate:—

"They are three: the 'Tierra Caliente,' or hot country, which, as its name imports, is low and hot, its elevation above the sea never extending above 2000 feet; 'Tierra Templada,' or temperate country, embracing an elevation of from 2000 to 5000 feet above the sea; and the 'Tierra Fria,' which includes all the high land above 5000 feet. The sudden transition one meets with in passing from the tierra templada to the tierra caliente is often very striking; a thousand feet, more or less, of elevation, shows this very sensibly, as in the present case. At the bottom of the barranca I was descending, I found a totally different climate and productions, the trees being filled with parrots, rarely seen in the tierra templada. Fruits of all kinds flourish better in these hot lands than elsewhere, and the city of Mexico is almost entirely supplied with these productions from the nearest tierra caliente, which lies in the neighbourhood Cuernavaca, eighteen leagues from Mexico. Throughout the republic, however, the true tierra caliente is only found, to any extent, along the coast. On both its sides, by the Gulf and the Pacific, there is a strip of this true hot land adjoining the sea, though it is often wanting on the Pacific side, owing to the mountains which in many parts of the coast come completely down to the shore."

The following is the description of a garden formed by an English family at Tepic, on the western coast of Mexico:—

"In proceeding from the town, at about a quarter of a mile or so from the mill, you get upon a good road—the best, I take it, in the republic—and no wonder, seeing it was made and is owned by Englishmen. The maquina itself occupies an angle formed by the river, which is here very pretty, and turbulent like a Scotch trout-stream.

"One half of the angle is filled up by the maquina and its buildings, the other by a splendid garden extending down to the river, from which it is separated by a low wall. This I shall describe somewhat at length, as I wish to show to what perfection a garden can be brought even in Mexico, when owned and managed by Englishmen. I do not believe that there is one equal to it in all the republic. The grounds are, perhaps, four acres in extent, and full of all the fruits, vegetables, and flowers that can be obtained. One main walk runs from the gate to the river-wall, and is lined with bananas on both sides; and under them is a hedge of coffee bushes, with their beautiful white flowers. The coffee grown in this garden is in constant use, and much approved.

"On the left of the central walk is a branch avenue of orange-trees, almost always covered with flowers, and green and ripe fruit. These oranges are delicious—some of the best I ever met with. Seats are disposed along this avenue, which is the pleasantest lounge in the neighbourhood. The trees are so thick that no sun can penetrate, and they are always filled with an infinity of birds. A walk extends along the river-wall, and also goes round the garden, and is lined by some noble trees. One path is edged by pomegranates, which are most beautiful when in full flower.

"European vegetables here flourish well, with the exception of potatoes, and we always had a capital supply from this garden. Peas are never out of season, and appear on the table every day in the year. Vines do not thrive, nor do peaches ever come to much: still both are in the garden, and they do the best they can with them. Strawberries were being planted just before I left, and I hope ere this they have produced a good crop. Apples, citrons, melons, pines, and other fruits all do well. In one corner of the garden were some magnificent aloes, one of which was on the point of flowering when I left. Its stem had shot up to the height of some forty feet, and was nearly as thick as my body. I counted thirty-nine branches from which flowers were to be produced, and several blossoms would appear on each branch.

"One part of the garden, perhaps a quarter of an acre, was planted with Guinea grass, and formed a playground for some enormous tortoises, which are natives of San Blas and its neighbourhood. There were six of these fellows, of all sizes—the largest as big as the one I have seen in the Zoological gardens, and able to walk, with great ease, carrying at once myself (10st. 11lbs.) and a 12-stone man on his back. They lived entirely upon the Guinea grass, and appeared very happy and contented. A stream of water supplying the garden ran through their playground, and a large hole was scooped out for them, in the mud of which they half buried themselves the entire day. When the big one was wanted for inspection, it took all the gardeners in the place, with crowbars, to rouse him out."

Gold, we all know, is not the only article of value in California, but we certainly did not expect to find that the *Onion* is one of the most valuable importations to that region.

"Onions are the great thing. For these there is a large demand in California—the Yankees eating onions as we eat apples—the neighbourhood of Tepic being one of the few places on the Mexican coast where these luxuries can be procured in perfection. When I left San Blas, onions were selling at a dollar and a half per pound in the market of San Francisco. At this time one of the residents in Tepic bought for export some seventy thousand of the precious fruit. For these he paid six dollars a thousand, and each thousand contained two hundred pounds. Assuming that he paid a pretty high price for carriage, and lost much by decay and in other ways, the reader will see that there will probably still remain a good per centage for the outlay of the money and risk. I mention this fact merely to show how money may be made in California without actually digging for it."

The meeting of *The London Floricultural Society*, the rival of the *National*, was well attended at Exeter Hall, on Tuesday, and the officers were elected. The London Floricultural Society will continue class showing as one of the best tests for seedlings.

It will be proposed at several provincial societies to give prizes to gardeners for *Schizanthus*, *Balsams*, *Cockscombs*, *Rhodanthe Manglesii*, *Phlox Drummondii*, and other annuals, which exhibit the skill of the gardener rather than the extent of his collections. We do not go the length of some as to annuals, unless they make the prizes for collections of annuals. Excepting *Cockscombs* and *Balsams*, we do not think any other annual could be shown alone. Half-a-dozen left to the choice of the grower might produce a good effect on any exhibition. Hereford made a splendid effort last year; and the shows which had been discontinued for years were resumed with great spirit. These exhibitions were liberally supported, and cultivators of all grades were put on the *qui vive* for another season.

There is no small stir among the amateur exhibitors, in opposition to certain judges appointed among the

nurserymen at various times, and who have hitherto always contrived that particular customers or friends should be first, and objections to appointing nurserymen at all, are raised in several societies. The difficulty of appointing independent persons has been stated over and over again; but the chief evils arise from the desire to save judges' fees, many nurserymen who gain by travelling being ready to attend for the mere cost of their journeys. But distant judges, unconnected with trade, are alone capable of giving satisfaction, and the price of such is the best money laid out.

Glass walls are the fashionable fancy of the day. Costly as they are, there are people who try every whimsical experiment; and it has been the constant aim of theorists to uphold in turn every toy as it has come up. How many changes in the plans of houses, and modes of glazing and heating, have been successfully advocated by a single writer? and let us ask one important question—How much has been expended by the gentry who have followed one theorist through all the changes he has supported? We might stop long enough before we got an answer. From 1839 to the present day, such a succession of impossible, improbable, and unprofitable changes, in plans and practices, have been earnestly recommended to those who could afford it, that a gardener in some places has been constantly unsettled, always in confusion, and no sooner got a little to rights than he was again unsettled for some new-fangled project. Glass walls, says a correspondent, will not be adopted quite so readily as some other nostrums. They are more chilling, more costly, more easily damaged, and more difficult to manage, than a common wall with glass before it, which can be removed when done with. In fact, to look tidy and clean, the glass will require cleaning almost daily, because these walls are so conspicuous that the slightest discoloration is at once seen.

One of the best and easiest modes of preserving a higher temperature for wall-fruit, that we have seen of late, consisted of eight-feet lights, as made for pits or greenhouses, put a little sloping to the wall, which had a three-inch coping; angular boards placed at each end, shut out the draught, and a rolling cloth under the coping of the wall drawn down over the glasses in the evening, and kept down during severe frost, completed this simple protection. Sometimes one or two trees only were covered, at other times the whole wall. It hastened the ripening very much. The lights were useful for other purposes when not in use on the wall; and the rolling cloth was used when the glass was not.

We have had many champions rise up in defence of the *Solfaterre Rose*; and a clergyman, the Rev. M. T. F., writes to us thus:—

"I am to a small extent a grower of roses, and in that character venture to interfere between Mr. Beaton and an especial favourite of mine, *Solfaterre*. Pray avert his wrath, or modify it so as to prevail on him to try the rose again, before he condemns himself to the loss of so charming a flower. I have had one for eight years, and have never known it fail of blooming freely and well. One year I over-

bloomed it, having had, I may say, hundreds of blooms upon it, and then I had to prune it, so that the following year it was not quite so good, but then I had many beautiful blooms on it.

My plant is upon a Dog-rose stock, it stands against a west wall, has a space quite to itself, and covered (till I reduced it a little) about half the side of my house; it never had any protection of any kind, it has a barrow-load of manure and ashes, or manure and loam, every year given to it; and the subsoil is sand. The only complaint I have to make is one common to that sort of rose—viz., that wherever an old shoot is cut, thence start the best blooming shoots, and I have, therefore, had my best Solfaterre rose blooms near the bedroom windows. This winter seems likely to try my roses, but I have no fears for my *Solfaterre*, or *Cloth of Gold* either.

Let Mr. Beaton try *Solfaterre*, not on its own roots (perhaps his plant is thus grown); let him venture it without glass, prune it pretty severely, give it a good drenching just when coming into bloom, and I am much mistaken if he will not yet write an article advising every one to buy it. I have budded *Solfaterre* on Bengal Florida, on Celine, and on Parabere, the Parabere being itself budded on a Dog-rose. The Parabere one was on a trellis fully exposed to the east; that bud, after blooming well one year, was cut off by the winter."

REST-PRUNING.

(Continued from page 190.)

THE APPLE.—Although the apple not unfrequently bears on the young wood, yet it is easy to distinguish wood of this character, or we dare not advise its pruning until a more advanced period. This fruit is grown under a variety of characters as to habit, but it will suffice for practical purposes to suggest three classes, viz.: the ordinary orchard standard, the dwarf standard of the kitchen-garden, and the trained espalier.

ORCHARD APPLES.—It is by no means uncommon to meet with huge trees, in country orchards, completely choked, with not only useless, but injurious, spray. Injurious, because in bearing, the fruit possesses little quality or appearance, and only serves to detract from the character of the truly good and useful fruit, situated at the exterior portions of the tree. Now, it must not be understood that the interior wood must be entirely removed; for it sometimes so happens, through peculiarity of some seasons, that the interior portions alone produce much fruit; this, however, is the exception to the rule. In the case of very old and hard-worn trees, we would entirely remove such spray, for when such trees become nearly exhausted, their last efforts are generally directed to a few of the extreme points on the stoutest branches, and it becomes a prudential proceeding to decoy the last and expiring efforts to that quarter. As for cutting back into the thick timber trees already exhausted with age and bearing, or corrupted with canker and other diseases, we have no faith in the practice; they generally return to their barren condition the moment the young twigs begin to bear fruit. We have known several gardeners, since our younger days, thus operate on the old trees in the margins of the kitchen-garden, the trees of course making flourishing young shoots in consequence; the operators would speedily chuckle over the glorious prospects in store, of a renewed garden in little time—but, as before observed, such appearances have ever proved fallacious in the majority of cases, as, indeed, might well be expected. Certainly, cases may occur, in which trees naturally healthy, and by no means exhausted, have yet attained a "leggy" or lean appearance, through bad training or bad management originally; such, indeed, may constitute legitimate subjects for the operation: but whatever may be done this way as to orchard trees, we cannot advise the cutting close back the dwarfs of the kitchen-garden, unless it be for the insertion of grafts of particular kinds. Such

can seldom compete with nice young trees on the Paradise stock, or which had undergone a preparatory course of root-pruning on the free stock, which latter practice we should prefer.

In pruning orchard trees, then, the operator has to survey his tree with a critical eye; not to "lump" the whole orchard, but to study each tree individually as he commences operations. The tree may be inclined to canker, or to die away at the points; it may be wearing away with long service; it may be in perfection, both as to health and stature; or it may be a young tree not long introduced. Each of these require a difference in pruning; if not in mode, at least in degree. Cankering subjects are difficult to deal with; as for a thorough cure, it is in vain to think of it in the case of old trees: but it is by no means expedient at all times to destroy such subjects, even when showing marks of considerable decrepitude. If such were to be practised, three-fourths of the Ribston Pippins in the kingdom would fall; for how seldom do we see one of those *entirely* free from canker, or dying points; yet they continue to bear, and fruit too, and we can even now ill afford to spare them. Whilst, then, such trees continue to produce a considerable amount of useful fruit, our advice is, destroy not, but rather introduce extra plants as successors. In pruning cankered trees, little more can be done than removing the diseased portions, as soon as the gangrene has paralysed the energies of such parts. They seldom make much wood; if they do, it is not unfrequently spray in the interior of the tree, which is merely an effort to restore the shattered constitution. Instead of hopelessly cutting the older branches back to such watery spray in the hopes of a renewal, it is generally best to remove most of it, for it only interrupts and appropriates the ascending sap, to the detriment of the established branches. Where the tree is valuable, of some size, and the branches cankered, it is well to scrape out some of the cankered cavities, and to fill them with a mixture of cow-dung and lime, like grafting clay, binding it on with a piece of old carpeting or other fabric. This, by excluding the air and wet, will enable the tree to form some valuable new bark.

Trees in their prime will not need pruning oftener than alternate years; this refers, of course, to healthy trees. Their pruning will consist in progressively removing interior portions and cross branches, which, however proper to be retained in the earlier stages, should at last give way; inasmuch as through the increasing volume of the tree, such parts, although originally enjoying a fair share of light, become, at last, immured in a kind of gloom, tending to infertility.

Here, again, young and immature spray produced on the main branches in a position where they can ultimately be of no real service, should be pruned away. If the trees are lean of branches, and what gardeners term leggy, shortening back may occasionally be resorted to, for the purpose of inducing an ample supply of shoots wherewith to complete the full structure of the tree. Be it here remembered that all this advice refers to orchard trees, with which we have not yet quite finished. Young orchard trees will require little pruning, a slight thinning in the young wood if crowded, and shortening back very long twigs, is all that is requisite. If the heads are lean, and badly furnished, shortening must be practised occasionally, in order to get them well furnished.

KITCHEN-GARDEN APPLES.—We come now to dwarf standards, or what may be termed bush-apples, and those under various forms of training, and here we have no essential difference in principle. The chief feature to point to, is the necessity for more shortening back in the young twigs than in ordinary standard trees. Some twenty years since, before we had discovered the merits, and commenced systematically the

practice, of *Platform Planting*, we used to shorten every shoot annually of all those intended to make neat bushes. Now, however, we do little that way; the trees make such compact and short-jointed wood, and grow with such steadiness, that little pruning is necessary. Still, those who have rambling trees, producing twigs fit for flower-stakes, must do something, they must shorten them; a work, however, better done by pinching in growth-pruning time. Root-pruning should, by all means, be resorted to at the same time, but as we shall, in a week or so, give a chapter on Root-culture, we pass it by for the present. Dwarf-standards will require regular thinning-out of the young spray annually in those parts where it appears crowded and confused; especially removing cross shoots, and so managing the pruning-knife, as to throw the whole tree into a sort of punch-bowl character during its earlier stages. With regard to shortening-back, that must depend on the character and strength of the shoots. It may be assumed, that nine to twelve inches is ample length of young shoot, in fact, as much as under ordinary circumstances can form spurs or the rudiments of spurs; and to leave a greater length, would be to ensure naked portions in the trees, which, under a dwarfing-system, ought not to be. Shortening, therefore, may be carried thus far; but, independent of this view of the question, another arises;—shortening must occasionally be resorted to in order to furnish blanks.

Whenever the tree is incomplete in outline or symmetry, a strong shoot should be drawn near that portion whilst young, and being pruned back to half-a-dozen buds, will speedily furnish the necessary shoots, more especially if all the superior spray be pinched in the early part of July, or when about eight inches in length.

The pruning of fancy-trained espaliers should be all conducted during the growing season; indeed, the same ought to be the case with all fruit-trees, if possible; but, *we fear*, somebody will cry, "*too busy*." This is a strange affair, to think that both principle and a sound economy join to recommend this practice, and yet how few can be persuaded to fall in with it. As to gentlemen's gardeners, we heartily absolve the majority of them; in old places in the country they are confined to a set number of hands all the year alike, and frequently half of them worn-out on the estate. They can neither change them as to number or quality, and the amount of such material being pared down to a minimum point, the gardener not unfrequently goes about with "one hand tied." So that when amateurs talk of the vast advantages of the regular gardener, they are very frequently grossly mistaken. Now, a wise economist should know, that one day's labour in July, is fairly worth three in January, and as to winter or "*rest-pruning*," when it is considered that it is but a repairing of former errors or omissions, what nonsense appears on the face of this policy. However, we must offer advice about trained espaliers, to those who cannot agree with us, or follow out these suggestions.

Whatever prescribed lines it is intended the shoots should proceed in, a shoot should be laid on as soon as possible, if only a temporary one. It sometimes happens that such shoot must be strained in an indirect or oblique direction, at variance with that harmony of form sought. So let it be, but watch the summer developments, and seek one more eligible; which, secure from the finger-and-thumb operator, is to succeed the crooked one a-head, if needs be. This, of course, must take place during the earlier stages of the trees. It is seldom that trained espaliers require much shortening; we would in general avoid it. If, however, the shoot is more than a foot in length, we would reduce it to that as a maximum; but, as before observed, trees on a platform will need little knife-work. All succulent shoots

removed, clear to their base; it is nonsense reserving the base of such shoots in the vain hope of producing natural spurs. Shoots of moderate growth, proceeding from a portion of the spurs, and not direct from the stem, may have an inch of their lower portion reserved to draw strength to the spurs; the produce of this, however, must be pinched when three inches long. All strong succulent wood, springing from the chief stems low down, should be pruned close away.

R. ERRINGTON.

BEDDING GERANIUMS.

THE improvement of our present race of Bedding Geraniums may well be said to be one of "the most difficult problems of the day," and to make good the assertion, I go on to describe more of them which are perfectly barren on the pistil or female side, although most of them yield pollen, which, to all appearance, seems good enough. *Rouge et Noir* is the last one I mentioned, and one called *Touchstone* is the only other variety, in the same section, with which I am acquainted. That variety also is barren, though with apparently good pollen. *Oliver Twist* was driven out of the garden by *Touchstone*, and the latter, in its turn, had to give way to *Rouge et Noir*. I never tried the capacity of *Oliver Twist* for seed, and I forget if it yields pollen. If it will seed, I am almost certain it will cross by the pollen of *Lady Mary Fox*, although not exactly of the same breed. *Oliver* is the nearest in affinity to it of all the sorts now under cultivation. Here, then, we have one chance, though a slender one, of breeding in the section of *Lady Mary Fox*, but I see no hope for us in the case of *Rouge et Noir*, except by returning to some of the wild species.

Sidonina is a very fine bedding variety, with large striped flowers, shading from pink to lilac to a lighter ground. It strikes freely from cuttings all the season. The stems are so fleshy that the plant may be kept dry, like a scarlet geranium, from October to March. I have known it kept that way tied in a ball of dry moss, with a plant of *Fulgidum*, the finest of all the wild species, and the brightest scarlet of the whole tribe, therefore I would have no hesitation in recommending these two to intending emigrants to Australia or New Zealand, or to those who send plants to their friends in those parts, provided they are packed close in dry sawdust or moss, and sent off not later than the end of November. The only fault I have to find with *Sidonina*, is that it is of a delicate constitution, and will not answer but in very sheltered situations. As cut flowers, ladies are more fond of *Sidonina* than any other sort, and gardeners often have to keep a large stock of it, merely for cut flowers. It does not stand much heat or confined forcing, but it comes in very early in the season, under the same treatment as the tea-scented roses. I forgot to say of *Unique* and *Rouge et Noir* that, with a little management, they might be had for ten months out of the twelve for cut flowers. From 55° to 60° of heat will not distress them much in forcing. *Sidonina* yields abundance of pollen, and yet is absolutely barren. I tried more varied experiments with it than with any other plant, and I do not think it is possible for any one to seed it, and, what is almost as bad, I can hardly guess what its parents were. It is, probably, one of those extreme crosses which some people call mules, but in such families as sport freely, like the geranium, I have no more faith in mules than I have in asses, yet I would exchange a good donkey, if I had one, with any one, for the secret of seeding my favourite *Sidonina*.

Moore's Victory, though not a bedder, belongs to the bedding class, and to the section of the *Oak Leaves*, or *Quercifolium*. It is an extremely pretty one for cut flowers and in small nosegays, but for large ones the

flower stalks are too short; it is also a gay thing anywhere above the eye, but let it come below the chin, and you see no more of it than the back of the truss, and not always that, as sometimes the leaves cover the flowers all over, so that it is of no use, even as a single plant in a mixed border, much less as a whole bed. Nevertheless, its bright and very gay fiery colour would claim a place for it in my experimental greenhouse—when I can have one; but the old story again—it is quite barren, and after all this, seven writers within the last ten years recommended it either as a breeder, or for bedding out; but here, I think, we have it now in the right state.

The nearest variety to *Moore's Victory* is *Quercifolium coccineum*, alias *Quercifolium superbum*, which has an excellent dwarf habit for a bedder. The flowers and trusses small; the colour crimson, with dark spots. It requires a warm sheltered place for a bed out-of-doors. It will force for cut flowers in April, but the forcing must be gently brought on, otherwise it is apt to get blind. It strikes from cuttings easily all the season. It is quite barren, and seldom has any pollen.

Quercifolium.—For general purposes this is the most useful of all the *Oak Leaves*, as it is a free grower, a good bloomer, and of a very hardy constitution; I can recommend it to all who grow any of this class of bedders. It is an old variety, got from seeds in the county of Norfolk, and Mr. Bell, the well-known nurseryman, of Norwich, told me, that, through his recommendation, it was bought from the raiser by Mr. Russel, a London nurseryman, after whom *Rhododendron Russelianum* was named. Mr. Russel "brought it out" in London as a fine "greenhouse plant" some twenty or five-and-twenty years ago; and I believe it is the very last *Geranium* of the old school for which a handsome sum was offered to a provincial grower for the London trade, and as such it is a remarkable plant, showing the difference between the old and new schools of *Geranium* bedders. The word *Quercifolium* means oak-leaf, and is, therefore, an unfortunate name, because we have a great many newer seedlings with leaves just as much entitled to that name as any of the old ones; and although none of these new ones are yet gay enough, or, at any rate, not yet sufficiently proved to be good bedders, we may rest assured that in a few years we shall have a large number of *Oak Leaves* to select good bedders from, notwithstanding that the three last-named, the cream of the old *Oak Leaves*, are barren. A fresh breed of *Oak Leaves*, with much stronger habits, and a harder constitution, is now in the second and third generations, from an excellent breeder, having oak-leaves, and by name called *Fair Helen*. This *Fair Helen* is the oldest cross we now cultivate, and, with the sole exception of the *Prince of Orange*, the hardiest of all the *Geraniums* we grow. If their leaves are dry, eight degrees of frost do them no harm. I once had a whole bed of the *Prince of Orange* overtaken by ten degrees of frost, and a sunny day following, which caused no more injury than a little crumpling in the top leaves. The flowers of *Fair Helen* are as thin as those of an old *Petunia*, and as gaping as a monkey, with the colours not at all strong, or well contrasted, yet *Fair Helen* has kept her ground, and, to this day, is a great favourite with the ladies in their nosegays, owing no doubt to the delicious fragrance of her leaves; and her offspring, as far as we have gone on with them, are also sweet-scented. The first *Helen* was the cause of the war between the Greeks and the Trojans, as every schoolboy knows; and our *Helen* bids fair to occasion a war, and a long siege too, between the breeders of bedding *geraniums* and those who are striving to get them as round as a full-moon. But the worst of it is, that our *Helen*, though fair and sweet, and a great favourite besides, will not do in a bed, and yet she is the first of the season to bloom out of doors,

and the last to yield to the autumn frosts, except perhaps *Unique*, and on that account, and having some knowledge of her ways, I introduce her here as the most sure breeder of all our old crosses, but her seedlings will have to pass through several generations before they will be fit companions for *Unique*, *Lady Mary Fox*, or our *Diadematum*. An old plant of *Fair Helen*, planted out in a sheltered border, and not pampered with rich soil, will come as true from seeds as if it were a wild species from the Cape. These seedlings will reproduce themselves, but in the third generation they begin to vary. I once had a self-coloured one at this stage, and one with the petals quite entire on the edges, but that was before the "fancies" appeared, and I was not then experimenting for bedders, so I followed them no farther. I have since crossed seven or eight kinds with it, and re-crossed some of them again and again; and although I have nothing to prove my assertion, I am quite confident that *Fair Helen* is a safe one for any new beginner to begin with in the way of crossing. *Unique* would be an excellent one to cross with an early breed from *Fair Helen*, but the two, as they stand at present, will not unite, at least I failed in doing so after various experiments for seven years, and I could never get any of the large greenhouse ones to touch it. As I am almost certain that the first two or three generations of seedlings from *Fair Helen* will be good-for-nothing, except as breeders, and for the sweetness and variety of their leaves, and also that high-feeding in the parents is very apt to cause very large leaves in seedlings, and, moreover, that *Fair Helen* is too strong already, I would strongly advise that it, and breeders from it, be kept in a half-starving condition in small pots, until good colours are first obtained; and then, if the leaves or flowers are too small, we must cross again, under a more nourishing diet, to get both as big as we want them. After that, breeding in-and-in, as the florists do, but under a protest that it is no such thing, will give substance of petal, and an improved form up to a certain point, and then a stand-still, except shifting the shades for want of fresh blood. That is an epitome of the true history of cross-breeding *geraniums* in this country since 1815.

Spleenii.—This is a fine bedding *geranium*, a strong grower, and, like all the strong growers, old plants of it will flower more abundantly than young ones, and the bed should not be rich or deep for it. The flowers are shaded with stripes of light pink or salmon on a deeper ground. It comes freely from cuttings all the season, and is very easily carried over the winter; I highly recommend it. *Sidoniu* and *Diadematum bicolor* are the only two more striped ones which can be had this season; but there is a new striped one at Ipswich, which will soon occupy the same place as *Spleenii*, and be a capital match-bed with it, where two beds, as near as possible alike, are required to balance two corners, &c., in a geometric flower-garden. The name of this new one will be *Mrs. Jeffries*; at least, I desired it should be so called when I first saw it about the beginning of last October. They tell us, when a new French rose "comes out" by the name of Madame this or Madame that, you may safely buy it at once, as the best seedling of the season, picked out by the Mrs. of the establishment on purpose to commemorate her own dear name: see how lucky *Mrs. Laffay* and *Mrs. Souchet*, and many more of the French rose-growers' wives have been, in selecting good flowers for their name. I selected this name for Mrs. Jeffries on the same principle, for she is certainly as active in looking after seedlings and sports, and other things about the nursery, as any Madame in France, or anywhere else, can be. Every season since 1813, I spent some time endeavouring to seed *Spleenii*, but all my efforts were in vain, and I put it down as perfectly barren, so you may judge of my

surprise when I saw this new seedling in a bed of seedlings in Mr. Jeffries's nursery, and knowing that there is not another plant in England which could produce it, except *Spleenii* itself, for it is as like *Spleenii* as any of the *Diadematum*s are to each other. After a number of hard cross-questions, Mr. J. could not well stand his ground; the old breeder and I were referred to the Mrs., who "knew all about it." One does not like to run aground too close in an argument against a lady, but still the thing ought not to be left a mystery, as, if means had been found to seed one barren geranium, why not the whole of them? But no; there is no mystery in the matter; this new bedder is a sport from *Spleenii*, with the stripes of the flowers and shades only shifted, and to Mrs. Jeffries we are indebted for this new addition to our bedders, which is to bear her name; and if all were known, we should find that "sports," as this freak of nature is called, would throw more light on the cause of barrenness, than we have yet dreamed of in our philosophy. D. BEATON.

MANAGEMENT OF CAPE HEATHS.

(Continued from page 256.)

POTTING.—Having referred to pots, drainage, and compost, I come now

4thly. *To the time of, and preparation of the plants for, potting and shifting.*—I am supposing that the plants, however young, have each got a pot to itself, however small. The treatment necessary, when three or four stood in one pot, was incidentally given under the treatment of cuttings. The time of fresh shifting must be regulated by the state of the young plant, and many other considerations. If it were not for this, the earlier after the end of March and the beginning of April, the better would it be for the plants, as then they would be so well established in their pots as to stand harder and rougher treatment during the winter;—unless under peculiar circumstances, I would never advise shifting at all after the second week in September. Young plants can scarcely have too small a pot at first, provided it is shifted again as soon as its roots reach the side of the pot, and these small shifts repeated, and no checks allowed, until it fills a four or five-inch pot. Whatever may be the mode of potting ultimately resorted to, I should not think of giving a large shift to a free or slow-growing Heath until it was large enough to fill the size of pot above referred to. The sooner, therefore, young plants are shifted, the better, and the more so, that another shift or two may be given the same season. In their case there is no reason why we should wait for either blooming or pruning. If such *tit bits* show flower at all, it would be the best economy to nip the bloom-buds off, and do all the pruning that is necessary by stopping a rampant shoot between the thumb and finger. I mention this, because some kinds will show bloom shortly after they leave the cutting-pot, but these early blooms must always be sacrificed if we wish to get a good plant in the quickest time. We must keep future ornament, rather than present display, in view, in the case of these young plants, and the sooner and oftener we shift them the better, provided we do not allow these frequent small shifts to injure the plants by our inattention. Where due care cannot be given, it will be safer to give a young plant a shift, so as to yield a space of from one-half to three-quarters-of-an-inch from the ball to the side of the pot, instead of giving it two shifts ranging from two-eighths to three-eighths-of-an-inch each. These dimensions of shifts will be quite large enough for plants taken out of *large thumbs* and *small 60's*. As we get on to four and five-inch pots, we give larger shifts in proportion. After that period, growers can decide at their leisure, whether they will keep on with this successive mode of shifting, or at

once transfer a plant in a five-inch pot, into one of ten, twelve, or fifteen. In the first case, the time of finishing blooming, pruning afterwards, and growth commencing again, must regulate the time of shifting, provided that time is not much later than the period specified. If it be, then either a very small shift should be given, or it should be deferred until the following spring. Many close, slow-growing kinds require so little in the way of pruning, that they may be fresh potted any time, when done flowering.

When the large-shift system is resorted to, it should always be done in early summer, that there may be time for rapid growth and hardening of the wood before the close of autumn. In the case of late spring and summer flowering species, it would be advisable to sacrifice a season's bloom when the large shift was resolved upon, so that the potting might be proceeded with early. Such matters attended to, all decayed flowers gone, all old ties, if any, removed or seen to, all old decayed foliage carefully extricated from the plants; and they, as respects their balls of roots, regularly soaked in water, and then allowed to part with all superfluity of moisture, the potting may be proceeded with.

4th. *Mode of Potting.*—This, too, must be regulated as to circumstances. Let us instance a few. Here is a nice little healthy plant in a three-inch pot; we turn it out of the pot, and find the roots beginning to mat slightly, close to its sides. With a small pointed stick we disentangle these roots, and prick over the ball, so as to render a smooth surface a rough one, and thus open up a clear pathway for the roots. A pot has been drained, the rough matter put above the drainage has been made firm, most of the old drainage of the plant is got rid of, unless interlaced with roots; the ball is then set in so that its surface stands half-an-inch below the rim of the pot, and leaving between it and the side of the new pot half-an-inch all round, to be filled up with the prepared compost. This is put in in layers, and in addition to striking the pot on the potting bench, a very thin piece of wood, similar to a bone paper-cutter, is run round several times as the layers are added close to the side of the pot, alike to fill crannies, and to solidify the soil without *touching* or *hurting* the roots. If there is any danger of hurting the roots, let this firming-stick's services be dispensed with, as young plants soon to be shifted again will grow all the quicker from not having the soil *too* close and firm. As you proceed, layer after layer, place between, some little fibry pieces of peat, *tit bits* of charcoal, and broken pots, in the proportion previously specified, and finish with some of the finest compost, just placing as much over the surface of the old ball as would give it a fresh appearance, after picking off a little of the very surface matter.

But there is another plant in a 5-inch pot, quite healthy: it has received what pruning it wanted, and is growing freely, and a nice bloom is wanted from it next year, and, better and better still, for years to come—abundance of flowering being more wanted than rapidity of growth. Let it be treated the same as the one above, only the compost must be a little rougher; the old ball must be sunk a quarter-of-an-inch more, to allow for plenty of water (for bad drainage and deficiency of water are the destructive rocks of Heath culture), and the space between the ball and the sides of the new pot may range from three-quarters to one inch. The soil, though loose, must be packed firmly, either with a stick or the points of the fingers; for when slow growing and abundant blooming are the combinations desired, no greater error can be tried than loose potting. This holds especially true in hard-wooded plants. On the other hand, in soft-wooded plants of but short duration, we easily combine *rapidity* of growth and *free-blooming*,

because, though we do not squeeze the soil so very hard, the constant watering has a tendency to run the compost closer together; and when thus the earth sinks in the pot, we can give top-dressings without danger; but such top-dressings, as would sink the collar of a Heath plant from half-an-inch to an inch deeper than it was before, would ever be attended with danger, if not with ruin. Hence the reason why many Heath growers, whenever the plants arrive at any size, *elevate the collar* part of the plant above that part of the ball which approaches the rim of the pot. In large pots, if the rise should be merely from a half to three-quarters-of-an-inch, I should have no objection, as the slight elevation would be merely an imitation of nature, a guide we may ever safely follow when diversity of circumstances are taken into consideration. This slight elevation of the centre would so far save the stem of the plant from the *jet d'eau* of the careless waterer; but the same object could be equally gained where the water-pot spout, and not a rose, was used, by having a tile or shell on which slowly to pour the water, as in a free-growing plant. I should have a great objection to allow water, very likely of a different temperature, to be dashed against the stem. The dread of this, and the fear of the roots being saturated with moisture, have led some eminent cultivators, not only to elevate the collar of the plant to the level of the rim of the pot, but several inches higher still. With good drainage, and compost which drains itself, I have never seen reason for adopting such a practice, and I cannot but think that those eminent men who succeed with it must entail upon themselves extra trouble. It is quite evident that the only moisture obtained by the raised part must be got by capillary attraction, and absorption from the atmosphere, while a dry atmosphere will carry the moisture away faster than it can be received. I can easily judge how those heaths, less patient of moisture, may succeed best under such a system when exposed to the wet climate of some parts of the west and south of our island, and how such a system would be attended with extra trouble and danger in the eastern and midland counties, where the atmosphere is clearer and drier.

These modes, when not essential, confuse the mind of the beginner, but with proper conveniences and attention, there need be no more difficulty in growing an *Erica* than a *Cineraria*. There is only one other mode of potting to which we deem it necessary to refer, and that is the large or one-shift system, though the former term we look upon as the most correct. I some time ago detailed the principles involved in this mode of potting and cultivating, and these all apply to its adoption for heaths. Whether the space between the ball and the sides of the pot be $1\frac{1}{2}$, 3, or more inches, greater care will be requisite than in either of the two cases referred to, to disentangle the roots, so that some of them, at least, be enabled at once to work in a new soil. According to the size of the shift must be the proportionate roughness of the soil, and the larger the shift the firmer must these rough particles be squeezed together. Whatever is put on the drainage must also be made firm, and as, however firm it be, it will continue sinking, it is advisable that in this case the collar of the plant should at least be level with the rim of the pot, and the outside of the soil little, if any thing, below it. Before the roots get to the outside, both collar and soil will be low enough. In all cases, but especially in this, the compost must be sweet, neither wet nor dry, nor yet lower in temperature than the soil of the plant before potting; if a few degrees higher, all the better; of course in summer, attention to this will be unnecessary.

Treatment after Potting.—At present I can only say, in early spring and autumn (if the last *must* be adopted), place the plants in a close pit or frame, or under a hand-

light, giving them a temperature, at least, ranging from 45° to 55° , and shade from bright sunshine until growth is commencing. In summer, a shady place would be the best after potting; young ones may be watered immediately. The larger plants, if the ball is previously well moistened, may be syringed, and not watered for several days. The large-shift ones may be frequently syringed, but no more water given at any time than you can satisfy yourself will reach *all the roots*. In every other case, when you do water, give enough to moisten *the whole soil*. This, however, will very likely be enlarged upon, that beginners may see their way clearly.

R. FISH.

EXOTIC ORCHIDACEÆ

PROPAGATION.

EVERYTHING in this mundane world has a beginning and an end, and so we find that our pleasant labour of writing on the culture of orchids is no exception to this rule. Many a pleasant hour we have spent in writing, and can conscientiously say that we have held nothing back, but have tried with all our power and experience to render the culture of these singularly-interesting and beautiful plants easy, not to the million, but to the many who are now engaged in this delightful and exciting pursuit. We are happy to find that our labour of love has been appreciated. Many kind friends have been so good as to approve of, and put our instructions into practice, and we may hope with success. Many have expressed a wish to have the papers which we have had the happiness of contributing to THE COTTAGE GARDENER on Orchid Culture, embodied in a small volume, and in reply to that wish, if it please God to spare us in health, with sufficient time to collect them together, we intend to publish them, so that future growers may at once see what they ought to practice in order to succeed.

We have purposely delayed till the end of our labours, the mode of propagating these plants, and that is what yet remains for us to write about. It was thought better to do this than to be continually repeating to every species the way in which they might be increased. There are so many that are propagated in the same manner, that we judged, and we think rightly, that it would be more advantageous to the cultivator to have the directions altogether, than to have them scattered through the whole series of papers. Generally speaking, the whole of the species of any genera of the order are propagated in a similar manner, we propose, therefore, briefly to run through the genera in alphabetical order, and to give the way in which we have been successful in increasing them. In the large genus *Oncidium*, and perhaps one or two others, there are plants of such different habits, that the way of increasing them must necessarily be different, and we shall of course, in such cases, deviate from the general rule.

Propagation of Orchidaceæ. ACANTHOPHIPPIUM.—This is a quick-growing genus, and the plants soon spread out over the pot. To increase them, turn a plant out of the pot, and cut off with a strong knife two or three or more pseudo-bulbs, pot them in the proper compost, give no water till the young shoots begin to appear, then water very gently, being careful not to wet the young shoots. They will make flowering plants the third year.

Here we would remark, once for all, that the best time of propagation, with few exceptions, is just before the plants begin to grow, or a convenient time would be when the potting of the plant is being performed; then the plants are out of the pots, and may be easily divided.

ACINETA.—The species of this genus do not grow so fast as the last. The way to increase them is to cut off two or three of the back pseudo-bulbs, pot them in small pots in the same compost that is used for the old

plants, and place them on a shelf near the glass till they begin to grow, then water them, and place them amongst the general collection. After they have made the first new pseudo-bulbs, put them in baskets, and treat them like the established plants.

ACROPERA.—By divisions of the whole plant, potted and treated like the established ones.

AERIDES.—This beautiful genus requires to be propagated by taking off young shoots that have already pushed forth young roots for themselves. These may be put immediately into baskets proportioned to their size; care, however, must be taken that the ends of the young roots are not bruised or injured. Some of the species will grow if the long stems are divided into lengths. Some three or four years ago, we had a tall plant of that fine species, *Aerides quinquevulnera*. It being valuable, we felt desirous to try an experiment with it, which, on account of its great value, was somewhat bold. The top had three or four nice young roots made the season previous. This top was cut off, and put into a smaller basket in sphagnum in the usual way; the lower part of the stem was cut into three lengths, each having two or three leaves, and also a living root: these cuttings were each put into small baskets, and during the succeeding summer we had the pleasure of seeing a young shoot spring from each of them, thus giving us four plants instead of one. Encouraged by this success, some other species of the same genus were subjected to the same experiment, but, we are sorry to add, not with the same success. Some pushed forth young shoots, but the greater part failed. The species we tried were *A. crispum*, and *A. odoratum*. It is more prudent, therefore, to wait till these and other species make young shoots with roots to them, before attempting to increase them.

AGANISTA PULCHELLA.—This plant sends out many branches and roots in the air, therefore, to increase it, take off one or more of the rooted branches, and treat it similar to the parent plant.

ANGRÆCUM.—All the species of this genus may be increased by taking off young rooted shoots, tying them to a block, and when well established, placing the block in a basket or pot of sphagnum, like the parent plants.

ANGULOA.—The species of this genus are strong in growth. To increase the plants, pass a knife through the back bulbs when the forward ones are beginning to grow, let them remain in the pots undisturbed till they have made shoots, and perfected their first new pseudo-bulbs, then, at the time of potting the succeeding season, separate these divisions from the old plants, pot them, and treat them in the usual way; they will flower the second year if well managed. T. APPLEBY.

(To be continued.)

OLD LESSONS ON DAHLIA GROWING.

We frequently smile at the laborious efforts of treatise writers, whose chief difficulty seems to be to find different words to express what they have themselves read, and afterwards wish to convey. A man no sooner manages to get a few prizes for anything, than he must set up for a writer, and instead of being grateful to his teacher, whose lessons commanded success, he sets up scribbling for himself, as though he were the original founder of the practice which he recommends.

The Dahlia lessons of 1852, may be comprised in the following hints:—The soil should be rich enough to grow good cabbages and cauliflowers, and be trenched two feet deep. If, therefore, the ground is poor, well dress it. As we have the plants in small pots all ready for planting out towards the end of May, we should first drive stakes into the ground at six feet distance from each other, firmly and uniformly, leaving four feet standing out of the earth, then with a trowel make

holes close to the stakes, and let the ball of earth be planted with the surface two inches under the level of the ground, but not much covered—of course it will be in a slight hollow that will hold water; put proper labels, or mark the numbers on the stake; let them be watered at the time, and also occasionally, after planting, if the weather prove dry, but all the ground should be soaked, instead of water being put to each plant. As these plants grow, they must be well supported, not merely to the stake, but to other props, if necessary, and if any plants run up much, take away the top of the leader.

With regard to pruning the plants, all weakly and all cross branches should be taken off close, and plenty of light and air should be admitted: the growth, beyond any bloom that is wanted, should be taken away, and the side branches should all be stopped, so that the strength may be thrown into the flowers. The exception to this rule should be any of those large varieties which would be too coarse if grown strong. Of course the showery who deem size to be the only desirable point, prop up tables, through which, by means of a slit from the edge to the centre hole, they bring the bud to the centre, and cover with a pot. The effect of this is to produce edged and blush flowers white and out of character, and dirty or speckled yellows, puro. It would be well if flowers were obliged to be shown as they would grow in a gentleman's garden, but according to the present taste, size is almost the only quality looked at favourably; and there is a sort of clique, comprising half-a-dozen dealers, and as many amateurs, who sweep off the prizes at all the shows—the clique of amateurs judging the dealers' flowers, and the dealers judging the amateurs'; and so long as this is submitted to, so long will large, coarse monsters be made to win, over compact, symmetrical, double varieties, with perfect outlines.

Dahlias are shown now according to the plan laid down by the Metropolitan Society, on flat boards, with six-inch feet behind, and three-inch feet in front, painted green, with holes six inches apart, and the size which will hold the flowers in their travelling tubes, merely lifted out of the holes in the box, and dropped into the holes in the stand. The object of this was to make as little work as possible. But another fashion has come up, which has done more towards cheating the public than the artificial growing under shades, we mean the practice of dressing flowers, by which rough, ugly, quilled varieties are rendered all that need be wished, and people induced to buy them, though perfectly worthless to any but those who depend on such means. If dressing were not allowed, we should no longer see certificates given to sorts that are thrown away directly they are bloomed, and a hundred varieties thus annually let loose upon the public for every half-dozen that are worth a gentleman's money. A visit to any of the uniformly winning showers will give a very good idea how a garden must be abandoned to every kind of prop, shade, and litter, and the plants skeletonized, to insure success, until we can make natural growth, compactness, symmetry and a perfect outline, beat coarse, overgrown, bruised, and manipulated monsters.

When the flowers begin to decay in beauty, and decrease in size, so that the beauty of a plant is gone, the tuber may be lifted with a spade, so as to cut off the supply, but not taken up, nor the plant cut; in a day or two, if there were room, the plants might be cut off, and the tubers removed into the shade, stem downwards, to drain out any moisture that may be in the hollow, and they should be kept so all through the winter, where they can be effectually protected from damp, heat, and frost.

In the spring the amateur may not want more than two or three plants of a sort, in which case he may put

the tubers in a warm place to start the eyes, so that he can divide the roots into as many pieces as there are eyes, or as many pieces as he requires, and pot them till the end of May, and the tubers may be reduced so as to go into four-inch pots, as every little tuber is necessary to support a shoot which will throw out fresh roots for itself very early.

If, however, more plants are wanted, let the tubers be reduced to moderate dimensions, and potted with the crown of the root well above the soil, and placed in a moderate hot-bed, or on a stove, in February or March. As soon as the shoots are two inches long they may be broken off, if few are wanted, or carefully cut off, just below the lower pair of leaves; these may be struck in light sandy compost, in pots, under a bell-glass, and as the shoots push rapidly, and strike freely, they must be attended to daily. As soon as they are well struck, they should be potted singly in thumb-pots, and continued in peat until well established, when they may be gradually hardened off in a greenhouse or cold frame, but well protected at night, and in frosty weather, until the end of May, when they may be planted out as at first directed.

Seed may be sown in pans or pots, at the beginning of March, be potted off singly when they have four rough leaves, and continued in heat until well-established in their pots, when they may be hardened off like the plants from cuttings, and be planted out in May; but seedlings need not be more than a foot or eighteen inches apart in the row, nor the rows more than three feet asunder, because, when they shew flower, all that are not as good as the best we have, should be pulled up instantly, to make more room for the better ones that are left, and any that are considered an acquisition should have stakes placed to support them; but an amateur who takes any pride in raising a good flower should be severe in his judgment.

If the outline of a flower be not perfectly round, the petals free from notch or points or ribs—if the flower be not double, globular on the face, perfect in the centre, and symmetrical—and if, in addition to all this, the petals be not thick, let it be trampled under foot, for we have annually too many called "first-rate show flowers," with the faults we have described. As to size, let it not be taken into account. If it be small, think none the worse of it, for the vulgar taste which prevails among a few will unquestionably have to give place to a more rational and elegant standard; not a new standard, but the one originally laid down, and only departed from to lower the test, and enable dealers to send out ten where they ought only to put out one.

G. GLENNY.

VERBENA CULTURE FOR EXHIBITING.

(Continued from page 258.)

SECTION 5TH.—PREPARING FOR EXHIBITION, WHETHER AS CUT FLOWERS, OR IN POTS.—We have now come to the fifth division of our subject, which is quite as important as any that have preceded, or may follow it, because, though every care may be taken to bring the flowers up to the mark on the very day of exhibition, yet, for want of proper attention, just at the nick of time, the whole amount of expense and labour, as far as regards success at the exhibition, may be thrown away. The first thing to prepare is a box to convey the cut flowers safely to the place of exhibition. The size of the box will of course depend upon the number of trusses required for the pan. Sometimes they are shown in twenty-four different varieties. In such a case, it is desirable to take at least one-third more than is actually needful, in order to have some to choose from at the place. The distance, too, must be taken

into consideration. If, for instance, the flowers have to travel fifty or a hundred miles, it will then be desirable to have double the number required to make up the stand, the box would then be required to be so much larger. Perhaps, after all, the box had better be made large enough to serve every possible requirement. In order to be the more useful, it may be made so as to suit various kinds of cut flowers, such as Pansies, Carnations, Dahlias, Pinks, Ranunculuses, &c. There are several ways of making these boxes, but perhaps the best and most convenient, is a square deal box, to open at one side, the side that opens to be hung on hinges like a door. This should be deep enough to hold at least three tiers of stands of bloom. These shelves, as they may be termed, will rest upon slips of wood, to separate them from each other a sufficient distance, so that the flowers are two inches below the stand above them. Each stand should be deep enough to hold a tier of tin bottles to be filled with water, to keep the flowers fresh during the journey, and through the time of the exhibition. These bottles should have each a tube of wood to fit into them, the hole through the tube should be wide enough to allow the flower-stem to be easily drawn through it, so far as nearly to touch the bottom of the bottle, and to make the stem quite firm it should be wedged tight in with slips of thick paper, wood, or cotton wool, care being taken that the flower-stems are not crushed or injured. The bottles should have their upper edges turned back wider than the holes, to rest upon the lid of the stand. They need not be more than two-and-a-half inches long, and three-quarters-of-an-inch in diameter. This size will be large enough even for Dahlia blooms. The holes for these bottles should be at equal distances, and wide enough apart to allow room for the trusses (or blooms of other flowers) to travel and stand on the exhibition table clear of each other. These stands are best made of strong tin. They should have a bottom and sides deep enough to allow room for the bottles, so that when they are taken out of the box, they will have a neat appearance upon the tables. This box, and the stands within it, should, as a matter of course, be made some time before they are wanted. A coat or two of paint of any colour the owner may fancy, will give them a more ornamental appearance, besides cause them to last longer. This apparatus will, it is true, cost some cash, but if well made, and taken care of afterwards, it will last a man's life-time. We hope our readers will understand the description of it, and we would advise them to get one made without delay, so as to become well-seasoned, and be ready the day it is wanted.

Small exhibitions may have more simple things; a box merely deep enough to hold one stand of blooms, may, perhaps, be enough for some, but the same principle of having vessels to contain water, fixed firmly in the stand, with the addition of the tubes to draw the flowers through, is indispensable. No person can expect to win prizes who carries his flowers in a basket, however carefully packed with cotton, wool, and moss. They are sure to be rendered almost unfit for exhibition.

The next thing to prepare after the apparatus for conveying the flowers, and placing them upon the tables, is to prepare the flowers themselves. The bed must be examined, and the trusses of bloom are now supposed to be fully in flower. Some that are much advanced had better be cut, put in water, and removed into some quiet place where there is no excitement to push them further on. A cellar, or a cool dairy-room, or even a cool parlour, where the sun's rays are prevented entering by blinds or shutters, will be a suitable place. Blooms that are not so much advanced must be allowed to remain on the plants till the last moment. Cut them, and gather a few fresh healthy leaves, fill the bottles with water, and then place the leaves in the bottles first,

and so place them that the truss may be surrounded with them, without crowding or pushing against them. Then draw in the flower, and this green ground will set off the colours of the flowers greatly. Write the names of each kind on neat slips of paper, and paste them on the stand directly in front of the flower to which the name belongs. Arrange the colours so as to have the most pleasing shades, for on this point the effect of the appearance of the whole stand greatly depends. Contrasts of opposite colours, such as very dark and very light, are always dangerous to the effect of the whole. Rather endeavour to blend the shades agreeably with the eye of a painter, softening, as it were, sudden breaks of colour, a scarlet, for instance, would look too glaring placed in juxtaposition with a white, but place a pink between them, and there is a gradation of shade agreeable and refreshing to the eye. Acting upon this principle in arranging the colours, let the stand be filled just in time, and no sooner, to allow time to reach the place of exhibition two hours before the judges are to enter. This will allow time enough to dress the flowers, flatten the petals, remove any that have dropped part of their blooms, replacing them with the extra bloom, and anything else needful to improve and set off their appearance. Expose them to the air no longer than is absolutely necessary. The exhibitor who bestows such pains-taking has far more chances of success than one who bestow less care, who comes to exhibition late, and who has no time then to trim his flowers, so as to set them off to the best advantage.

Verbenas in pots, to prepare for exhibition, must be deferred till the next opportunity. T. APPLEBY.

A CHAPTER ON PEAS.

AMONGST the many productions a well-cropped garden sends to our tables in summer, that of a "dish of nice peas" is always acceptable, and next to (if not in some cases equal with) the potato, stands this important vegetable. The interest that usually attends the first introduction of peas for the season, makes them an object of much anxiety, or, it may be pride, in the skilful cultivator; so that, prior to the first "dish" being gathered, scarcely a day passes but he watches their progress, scrutinizing with eagle eye their merits or failings, and taking his notes accordingly, he sets down in his mind what varieties he thinks he will grow next year, at the same time vowing vengeance against a tall, lank, half-barren sort, occupying the best position, and which had been strongly recommended to him as being several days earlier than the earliest known. This expected prodigy with a high-sounding name, for even peas bear Royal and other astounding titles, he was told would not be more than three feet high, or in very rich ground, four at the utmost. He was also told it would be laden from the bottom upwards, and, coming into use before all others, would be in fact everything that could be desired. Alas, how often have we, and many others, been disappointed in such matters, and the frown that overcasts the features of the otherwise cheerful cultivator, when some visitor or humble cottager points to them in a half-scolding tone, tells, in unmistakable language, how he laments the error he has been led into, by too implicitly trying, on an important scale, an article he had not otherwise tested in a smaller way. Now, we know of nothing more vexing to the gardener, than the disappointments he often meets with in peas; repeatedly have we seen fatal mistakes in that way, and sympathy from "the kitchen," does not always follow such mistakes, besides the waste of labour, materials, and space. We have more than once seen a plot sown with a kind recommended as "Somebody's Marrow," sown in the way marrow peas usually are, i. e., wide

apart, and judge the indignation of the party on finding his eight or ten-foot runners, quietly lay themselves down when about twice that number of inches. We need not dwell on the evils of such disappointments, we only mention them in the way of assisting our readers to avoid such vexatious results, and now proceed to the practical details bearing on the cultivation of this essential vegetable.

Our readers will remember that we advised the first crop of early peas to be sown on some warm sunny border, about the middle of November. We also recommended another sowing about Christmas, in a similar situation. Now, in favoured localities, a good early sort sown, and accidents guarded against, there is every chance of these crops coming into use pretty early, without any extraordinary care, beyond sticking them early with short spriggy boughs, for which the dead or old branches (not the green fresh ones) of spruce fir make the best. We say stick them early, because such boughs are of themselves no contemptible protection, and in very severe weather, they afford a sort of frame-work over which to throw mats or similar coverings.

This crop we presume now to be progressing as well as circumstances can reasonably allow, and at the proper time the amateur will doubtless act accordingly, but there are a numerous class of readers who do not possess such a highly-favoured border; perhaps they have no border at liberty, and only a cold, heavy, moist garden soil to act upon, in a locality bleak and uninviting. In their case, another mode must be adopted altogether. The icy coldness of their ground is almost too much for even this hardy plant during the winter months, so that means must be taken to forward a crop in some heated apparatus, to plant out whenever the ground is in a condition fit to receive such things, and by judicious management they will be enabled to gather peas not many days later than their more favoured brethren, several counties off. Now, we do not presume to advance anything strictly new in the mode we advise, in fact, things "totally new" are rare, even in this "wonderful age;" for no sooner does a man suggest a something different from anything he ever saw, and tell the world the invention is "an original one," than a host of writers immediately rise up and prove, or attempt to prove, the very same thing to have been in existence many generations; so that, in the present case, we lay no claim to invention, but only urge the adoption of a useful old plan in such places as we know it may be acted on with a beneficial result.

We will suppose a vinery, or some other heated structure, to be in force, and we know of no more suitable place than a vinery; let, therefore, some shallow boxes, seed-pans, or pots, filled, or nearly so, with good garden soil, be introduced into this place—sow your peas tolerably thick, cover them up, and water when needed. They will soon make their appearance, if the place is at all warm, and soon after, they must be removed to a cooler place, but not until some progress has been made; and eventually they must, by degrees, be removed out of doors to some sheltered corner at first, until they be so far hardened off as to be planted out in the rows they are to occupy, which, however, in the cold climates we have above alluded to, cannot well take place before the middle of March, so that to prepare them before that time is not attended with any advantage; and turning them out into ground that more resembles the bottom of a pond, when the water is drawn off, than anything else, cannot be expected much more successful than if they were thrown into that pond. So that the cultivator who has such a soil to deal with, and no immediate chance of bettering it, ought not to be in too great a hurry in planting-out, as nothing is gained by it.

There are many other modes of growing, or rather starting, peas, than in pots or boxes, but they are all modifications of the same thing; we have seen the old-fashioned horse-shoe-shaped drain-tiles filled with earth, and peas sown on them; these were planted out with the ball unbroken, and so far were better than any other mode we know of, but the space they occupy while in a preparatory stage is too much to be allowed them in cases where other objects claim equal attention; though the young gardener will find these tiles no bad substitute for pots when put to his shifts. Another mode is to sow peas in narrow strips of turf turned upside-down, and a little mark for the seed to lie in; this turf, which ought to be cut pretty thick, and all deep-rooted weeds, as yarrow, docks, dandelions, &c., removed, is soon enclasp'd by the roots of the peas; but it ought also to have been prepared some little time, so that the grass and other herbage be dead, or nearly so. Another evil attending this plan is the inconvenience of removing such a breakable article, the number of times it has to be done in the course of "hardening off," whereby much of its otherwise utility is lost before it arrives at its destination; this plan also labours under the disadvantages we have alluded to in the tiles—it takes up too much room in the forcing department, otherwise in many other respects it is good and useful.

We need hardly say, that in this course of probation, the pots, boxes, &c., will require more abundant waterings than is given to things usually in such places, more especially at the latter part of the time, when a mass of roots, and corresponding one of top, require a liberal support. But we will suppose all to have gone on well, and towards the middle of March they are to be found occupying a position against a south wall, the pots all clustered together, and some stakes placed against the wall. A mat is thrown over them at nights; and at their first introduction there, a few boughs, or some other protection, are placed round them, to keep off cold winds. These being gradually removed, and the weather tolerably fine, preparations must be made to plant them out, or, rather, those preparations ought to have been made before, as we expect the ardent cultivator to have that forethought which enables him to foresee what is wanted, long before the time of action; in this case he will, therefore, have a large heap of fine loamy soil piled up in some open shed, which, having been turned several times, and being tolerably dry, affords a more grateful repast to the roots of the pea—when divested of its former food, and to a certain extent mutilated in the operation—than the cold, ungenial moisture of the ground forming their future abode. We need hardly enter into details of planting, which are well known to every one; suffice it to say, that the imported soil alluded to, mixed with leafy-mould, or other lightening substance, ought to be used freely in the row, and be placed in such a manner as entirely to compass the roots, and that they must not be planted deep—rather let them stand above the ordinary level. It is not common for the first crop to suffer from dry weather so much as after ones, and on such soils as we have been speaking of, it is not likely they will. After planting, let them be immediately staked, and all the twiggy pieces you can command may be stuck in at the bottom, so that some degree of shelter may be given against the blighting influences of east winds, which, at this season, are as much to be dreaded as the spring frosts, and, though more indirectly, do quite as much harm.

Although it is at variance with the general practice of writers in popular journals to recommend particular varieties, yet, as we have in this article alluded to cases where unfortunate mistakes had occurred, we beg to say, for the benefit of our readers, that last year we tried the *Prince Albert*, the *Racehorse*, the *Early Warwick*, and *Warner's Early Emperor*, all sown in one

day, and in one place, under favourable circumstances, and the result proved the *Emperor* to be the earliest by five or six days; next to that the *Prince Albert*, but still at a marked difference. Now, though we have not abandoned that taste for trying novelties, we admit the issue of the trial alluded to has occasioned our dismissing all but the winning ones in that list, but their places are occupied by other kinds, or, at least, by kinds bearing other names, the results of which we shall, in due time, impart to the readers of *THE COTTAGE GARDENER*.

KITCHEN - GARDEN SUNDRIES.—Whenever a vacant border can be had under a south wall, or close wooden fence, let it be turned to account for something required early; and let a bank of earth be thrown against such a place on which to sow *Lettuce*, *Cauliflowers*, and other plants; besides, *Radishes* do very well in such a position. A thatched hurdle to lean against such wall or fence, a few inches from this sloping bank, is also of great service in protecting tender and delicate objects; but where there are fruit trees, which is, or always ought to be, the case, such banks cannot there be formed, though the same thing may be done on a narrow border by the side of a wall, where they will come nearly as well. Those of our readers residing in early districts will have made much progress in such work; but as we write for all, and this week more especially for those denied the genial climate of the southern counties, we fear we must (as our space is occupied) request them to look to former Calendars for other operations now necessary, and by all means to take advantage of frosty mornings to turn over, and well pulverize, the ground intended for *Carrots*, *Onions*, and other seed crops, so that it may be in good working order when wanted.

J. ROBSON.

FEATHERING OUR NESTS.

By the Authoress of "My Flowers," &c.

THERE is a kind of dishonesty in the world which people do not generally call *theft*. It is described in a few words, which every one understands and is accustomed to—"Feathering our nest." A man who would be extremely shocked at the simple idea of breaking into his neighbour's house, or stopping him in the dark and taking his purse, or slipping a silver fork or spoon into his pocket when his neighbour's back was turned,—a man who would shudder at doing these things will, if employed by this very neighbour, or master, feather his own nest, and think nothing of it. Now, in the sight of God this man is *thieving*. Let us lay it to all our hearts, for every one of us may have opportunity to act justly or unjustly in the course of our lives, although perhaps we may not be hired servants, or men working for wages. We may all be placed in situations of temptation some time or other, and some of us may be persons employed and trusted by our fellow-men, and, like Joseph, we may be rulers over all. Now, to our heavenly master we stand or fall, and not only to our earthly one; he may see nothing, hear nothing, know nothing; we may feather our nests in peace, and none may gainsay it. But there is one who hateth the bag of deceitful weights, and to whom a false balance is an abomination. Oh! let us strictly watch ourselves, lest *He* see evil in us. We cannot escape from *His* eye.

I remember, many years ago, the death of a man who had "feathered his nest" in the service of a kind and liberal mistress; and I will place before my readers a few circumstances that may instruct and benefit us all.

George Watkins rented a farm on the estate of a lady of large fortune, who knew nothing of country matters, and trusted her tenants would do right by her. Watkins' house stood very near the mansion, and the other tenant's farm was at no great distance. Both these men feathered their nests; one of them died and left it all behind, but George Watkins had more to suffer.

Every one knew that he imposed upon his kind mistress in a thousand ways. This and that was required, such and

such an improvement should be made—repairs were always wanting; and Watkins managed it all for himself, for Mrs. S— knew nothing. She could not be made to see or believe that she was robbed right and left—she thought well of the two farmers, they had been on the property for years—she was used to them—she could not bear to make a change and part with either of them.

George Watkins had two sons. The elder was made a gentleman; the younger was treated with marked unkindness, amounting to cruelty. He was made to sit in the barn, while his brother lived in comfort; the younger worked with the men, and looked like a common labourer, while the elder was dressed extravagantly, and followed the hounds. He was a wild young man, and was taught expensive tastes and habits. Of course his father had to find the money, and what with this, and other things, Watkins suffered worldly losses, which were not known until he quitted the farm. Mrs. S— died, the estate passed into other hands, and Watkins had notice to quit.

It was a melancholy day when this change took place. But the prosperity of the unjust man cannot last, for God himself has declared that it shall not. Watkins and his wife removed to a little cottage. His eldest son had married a woman with money some years before, and was doing well; the younger worked on the roads, or wherever he could find employment. Watkins himself was attacked with sickness, his wife was infirm, and they had no daughter to take care of them. I remember, although it is so long ago, the impression it made upon me when I called to see them under their altered circumstances. I could scarcely believe that the dirty-looking, broken-down, ill-dressed man before me, was the same that I remembered so stout, and hale, and well-to-do, a few years before. I could scarcely suppose I was speaking to the tenant of Mrs. S—, with whom she used to drink a customary tea once every summer, and who was then thriving in his worldly ways, with his nest well feathered; but so it was. He was now aged, poor, neglected, unhappy, and suffering from bodily infirmities. No one seemed to care about him, or respect him, and both he and his wife died and were buried unnoticed and unregretted.

I remember another man also who feathered his nest at the expense of his employer. He was bailiff in my own family, and when he was dismissed from his situation he boasted to his friends that he had made six hundred pounds since he had been at ——. This man's end was not peace. Whatever money he really had secured made itself wings, and he, and his wife too, died in poverty and trouble.

I dare say many of my readers can add instances of the same kind in their own experience, to these. Very seldom does such conduct escape punishment here on earth, for a "woe" has been uttered, by a voice whose words pass not away, against "him that buildeth his house by unrighteousness, and his chambers by wrong." A man may feather his nest warmly and snugly, but he will not sit in it in peace. He has *robbed his neighbour*—he has taken that which was not his right; if he thinks he has not openly broken the eighth commandment, he has openly broken the tenth, and it will be difficult to prove that he has not done both, in the sight of Him who searcheth the heart.

Let us feather our nests *for eternity*. Let us walk strictly by the statutes and precepts of God. Let us watch our hearts with diligence, for if they keep time and tune with the Word of God, neither our feet nor our hands will be swift to do evil. Let us feather our nests so that we may lie down in them with a conscience void of offence. No nest will be soft, and warm, unless "the everlasting arms" are beneath us—unless we "trust in his wings," and are "covered with his feathers." Let us all remember *this*.

ALLOTMENT FARMING—FEBRUARY.

WE have now commenced the year in earnest; and the appearance of the snowdrop, the coltsfoot, and some other harbingers of spring, will strongly remind us that we must put our house in order;—must buckle on our armour, and prepare "to take the field." Away, then, all wintry and lethargic feelings; flowery Spring beckons us on; interest, duty, and health, invite us to shake off all apathy.

And now let us hope that our oft-repeated advice, to dig

deep, and drain well, has been attended to by many of our readers; and that all proprietors, and those having power and influence over allottees and cottage gardeners, have strenuously used all *fair* influence, and all charitable and laudable means, to induce the holders of such plots to put faith in such practices, and assisted them, if needs be, in such extra means to reclaim unfertile spots as are commonly beyond the poor man's reach.

To such as have omitted these necessary proceedings we can only say, better late than never. Much of such labour may yet be performed, only, with regard to the amelioration of soils for the current season, much valuable time has been lost; the mechanical texture of adhesive soils cannot well be brought into proper order without the action of a winter's frost. Let any man who has possessed a piece of land for years of an apparently incorrigible character, and water-logged, let him thoroughly drain such land in October, and after laying a month to empty itself, trench deep, and ridge it. If there has been an average winter's frost, he will scarcely know his own plot again when breaking it down in March. Henceforth one-half the labour hitherto employed will suffice, and the productiveness, we will undertake to say, will be doubled, independent of the application of manures. If such be facts, surely they are sufficiently persuasive.

ROTATIONS.—Judicious rotations are of much value; and all that is to be done this way should be at once planned decisively for the whole year; it only needs an hour's *close* consideration. We do think that as a simple plan—and tedious ones will not answer for the generality of small holders—that the division of any given plot into three or four equal parts is a very convenient and safe mode of procedure. Thus throwing most of the crops into three broad classes, we may assume something like the following as descriptive terms:—

DEEPENERS, PREPARERS, EXHAUSTERS, STOLEN CROPS.—By the first, we mean those crops for which it is particularly expedient that extra facilities be afforded, in order to render them highly profitable; for on examination it will be found that they are the pivot on which the cottagers or allottees' welfare mainly depends. It will, of course, be seen that what are ordinarily termed "root crops" are the kinds pointed to. The cultivator may have a pig, or he may not; he may even possess a cow: whether he does or no, these roots are the essential for the *wintering*; and if he has children they will, at least, constitute the chief *bulk* of diet, notwithstanding the low price of wheat as compared with former times. On these, then, the small grower should expend his chief strength; for they not only repay the extra labour involved in their culture, but serve a most important part in a good rotation—that of deepening the soil; and, by consequence, bringing up certain portions of what our chemists and learned men term inorganic materials. Whatever persons with predisposed views may say, it is, we think, certainly proved by a concurrence of both science and practice, that a gradual amelioration, and as gradual an uplifting of such material to blend with the surface-soil, is what may be justly termed a *renewal*. It is not simply a chemical affair; deep roots are generally enduring roots—that is, they will *work* during periods of extreme drought and heat, whilst shallow roots are idle.

As, then, we feel bound to advise that the whole of a garden, or allotment, be deep dug (or trenched, as some folks have it) every third year, we do think that such labour is best expended over the "root crops." These, in the main, are *fusiform*, as our learned men term it—that is to say, spindle-shaped, or what country folks call *tap-rooted*. So growing them effects two objects; for since the chief merit in these things is to have the greatest length, as well as bulk, why not make them the turning point for a *periodical deepening*?

If any man can dig deep every year, so much the better; this, however, all cannot do. We well remember, some years since, trying a plan which turned out just the reverse of what we had intended. The gist of the matter was this: In the northern counties of England gardeners are frequently puzzled to find ground sufficiently poor on which to grow their beet, and their silver-skinned onions, for ornamental pickles. Our agricultural friends will count this a capital joke; but their objects and the gardeners in

the production of beet are as wide as the poles apart. All good gardeners know full well, that to have fine beet for salad purposes a poor sandy soil is requisite; the same may be said of the silver-skinned onions for pickling. Our newly-onlisted member of THE COTTAGE GARDENER's staff, Mr. Robson, will, we feel assured, bear us out in this matter; for there is something in his excellent papers which tells of sound experience and a well-matured judgment. Well, it so happens that the kitchen-gardens of the nobility and gentry are, in general, highly manured; indeed, having no "rest" for, it may be, a century, everything, therefore, is carried "by force of arms." Thinking, then, in those days, that by trenching unusually deep, and bringing up much of the subsoil—a material intermediate between light loam and red sand—we should make the soil very hungry, we did so. On this plot we sowed our fancy beets, our silver-skins, and our scorzonera and salsafy—the two latter being root crops, apt to "bolt" through with too early sowing, or too high a stimulus. But, alas! our deep digging made the beet coarse, the onions monstrosities, and as for the scorzonera, &c., they were in full bloom in August—a most undesirable affair. We can never, therefore, forget this useful lesson, which throws much light on the necessity for inorganic, as well as organic, materials as the food of plants.

PREPARERS.—First amongst these ranks the potato, for few things have the ground in better order for succeeding crops than this root. We do not mean that it enriches the soil; whatever it does in the way of manures depends, of course, on the quantity applied to the soil at planting time. Under proper culture it leaves the soil almost equal to a summer's fallow. In this class may be placed most of those things which neither belong to the deepeners nor the exhausters, such as artichokes, onions, peas, beans, &c. Certainly, in the strict sense of the word, some of them are not more Preparers than an occasional article in the other classes; but we prefer this arrangement on account of keeping all these things unmingled with the brassica family; that is to say, the various cabbages, greens, kales, broccolis, &c., which are at once corrupters and exhausters, and if long cropped on the same land are almost sure to club.

EXHAUSTORS.—We thus give them their place in the order of the subject, although but just alluded to. These, as before observed, should not follow twice in succession on the same plot, if possible.

"STOLEN" CROPS.—We have borrowed this phrase from the farmers, who use it to express departure from what used to be considered system in rotation. Thus, a gardener may have a plot of land from which he has removed a lot of onions in September, intending it for a main crop of carrots in the next year; this he may crop immediately with coleworts or spinach, which may be got off by the middle of April, in time for the carrots: this we should call a "stolen" crop. However, the term is used here in order well to separate objects, and to lead the cottager to appreciate system, which he can only do by keeping his subjects well classified, so as to see at a glimpse how to combine when he attempts mixed cropping. To recapitulate them, we have, first, the deepeners or tap-rooted things, the ground well trenched for them, manure for many of them turned in rather deep. These succeeded by the preparers, what manure is used dug in near the surface. These, again, succeeded by the exhausters, for which the preceding crops have made capital preparation, inasmuch as the ground is deep, well-manured, and fresh to them. There *might* be added a class of miscellaneous character, such as kidney beans, lettuces, spinach, and many other *little* things; but as such will begin to destroy the simplicity of a scheme, we leave them to the cultivator's own fancy, for they are quite subordinate to the general plan, and must be kept so, being generally more crops of accommodation than of profit.

We meant to have discussed the subject of *mixed cropping*, but find it will carry us beyond our space. This must be reserved for the next letter, when we will endeavour to show how far it is practicable and commendable. In the meantime, let our readers take well into consideration the character of their crops, their habits, &c., and this study, we trust, will be facilitated by the present advice.

BUSINESS OF THE MONTH.—The end of the month is a very good time to introduce some beds of the early horn carrot, but those who do so, should make up their mind to

use some covering, after the manner of early radishes. The soil should be in exceeding fine tilth, and some mellow and dark-looking material, such as very old leaf soil, old tan, very old manure, &c., be given as dressing; in fact, anything which has once been living, vegetables, weeds, &c., and which, through age, has assumed the appearance of mere soil. This may be incorporated thoroughly with the soil to the depth of six or eight inches. They are by far the best for early work in beds of forty-two inches in width, for they require a good deal of weeding, &c.; and, as they are a delicate plant when young, they will neither bear the pressure of the foot nor the hand,—no mauling or messing may be allowed. We grow them on beds, elevated nine inches above the ordinary surface, and cover the surface of the beds entirely with a mixture composed of strong loam and charcoal grit; the loam in a powdery state. Such a mixture is valuable kept "cut and dry" in an outhouse, in some useless corner. It is a slug or snail repellent; and latterly we have taken to mix a fine material with it, extracted from the cinder-heap, riddled like radish seeds. These materials together, after a shower of rain, leave a regular Macadamised surface, over which the slugs forbear to travel, notwithstanding the provocative character of a delicate young carrot for supper. Let us once more advise such allotment men, or cottagers, as possess a warm soil, take a pride in cultural matters, and are situate near a good market, to try their hand at the horn carrot as a speculation, bunched and forced into market in April, when all the world is gaping for spring produce; they are exceedingly profitable, and have the merit of throwing their ground at liberty for a whole summer cropping.

The end of the month is a very safe time to get in what may be termed the cottager's main crops of peas and beans, especially the latter. In broad beans, the old Windsor is, after all, the most substantial bean for a strong-stomached family; nevertheless, some of the long-pod section will sometimes succeed where the broad bean will not; the broad requires a stronger soil. As for peas, we must still suggest the green imperials for the class we would desire to serve; next to them, the old blue Prussian. And now for the reason. In the first place, our patrons in the allotment way are generally badly off for pea-sticks; in the second, they profess to like what they call a good mouthful, such as the imperial; and in the third, as peas with men of narrow means are a kind of luxury, and may not be expected every day, why it becomes necessary to seize upon a kind which produces a glut and off again, rather than one long succession. Thus, imperials sown in the end of January, will rejoice the hearts of the cottager's bairns by finding them shelling-practice from the early part of July until the beginning of August,—a dish or two a-week, and this is a first-rate luxury. He can then crop the plot with winter greens, and very likely may have already provided successors by planting greens long before the peas are picked. Our maxim is this—As much of what are called domestic indulgences as you please, so long as there is no sacrifice in point of profit at the year's end.

CABBAGE PLANTS wintered in their bed should be got out in the second week, if possible; but, in all these things, the state of the soil as to working must be considered of high importance. Better wait a week or so, than sow or plant on puddled soil.

CABBAGE SEED.—A sprinkling should, by all means, be sown in the second week; and henceforth, let every man sow once a-month until the month of September, when he may put the bag away until the following February. A pinch of *lettuce*—the *Ady's Cos*—may, by all means, be thrown in with a bed of radish seed, in a warm nook. And now for the potatoes. Our space is already exhausted, but we must, in conclusion, give three good hearty cheers for early planting. No late planting for us, in the old sense of it. Let, therefore, all who would be as secure as circumstances permit, look well to February and March as to winding-up their potato planting. R. ERRINGTON.

APIARIAN'S CALENDAR.—FEBRUARY.

By J. H. Payne, Esq., Author of "The Bee-keeper's Guide."

MESSRS. NEIGHBOUR AND SONS' IMPROVED COTTAGE HIVE.
—In fulfilling my promise of giving a description of this

hive, I would say, that it consists of a straw, circular, lower compartment, having three windows and outside shutters; a thermometer is fixed across the centre window, so protected that the bees cannot work between it and the glass, and thus intercept the view of the graduated scale. This little thermometer is found to be a useful appendage, as it affords to the apiarian a pretty correct indication of the state of the interior of the hive at all seasons of the year. This lower, or stock-hive, rests on a stout wooden floor, at least two inches in thickness, projecting in front as a landing-place for the bees, which enter under the hoop attached to the straw by means of a sunken way; the *hoop* is used to overcome the uneven surface of the straw, as well as to give durability to the hive. The top is also of wood, having three or more circular openings, of about three inches diameter, to receive as many glasses; but Messrs. Neighbour are, I understand, about to introduce to this hive openings of an *elliptical* form instead of *circular*, so that when the zinc sliders are inserted between the filled glasses and the wooden top, for the purpose of removal, not a bee need necessarily be crushed. In the top of each glass is a small hole, through which a tube of perforated zinc is suspended, upon which guide-combs may be fixed; it also forms a convenient support, to which the bees attach their combs. Over the glasses is placed a cover of straw (also *hoop-bound*), closely fitting the top of the stock-hive, and secured by means of thumb-screws, so that it can be removed with great facility, to allow of inspection or operations. This straw cover is surmounted by a ventilator, forming a neat finish, and by which the temperature of the glasses may be regulated.

NEIGHBOUR'S OBSERVATORY HIVE is of very stout glass, with an opening at the top, of about two inches diameter, over which a small glass may be placed when necessary. The large, or stock hive, stands on a mahogany floor-board, with a circular sinking to receive it; there are holes in the floor-board, covered with perforated zinc, for the purpose of ventilation. Within the hive, on an upright support rising from the floor-board, are arranged, in parallel lines at right-angles, eight bars, of about an inch wide, leaving a space next the glass all round, to which the bees in the first instance attach their combs, guide-combs having been placed upon them. There is a cover, made of straw, for the whole, which reaches the floor-board, and can be raised at pleasure; a landing-place projecting as usual, with a sunken way to allow the bees egress and ingress, which completes the contrivance. Every person who visited this department of the Crystal Palace must have observed the intense interest excited by seeing bees working in this hive.

STOCKS.—A careful examination of every stock should be made on a mild day, towards the end of the month; and where any doubt exists as to the sufficiency of food in the hive to carry the bees safely through the spring, a supply should *now* be given, and I must still recommend *barley-sugar* (where honey cannot readily be obtained) as the best food that can be given. A good receipt for making it may be found at page 55, vol. iv., of THE COTTAGE GARDENER; but it must always be remembered, that where barley-sugar is used as food, the bees should never be left, even for a day, without a supply, either at the top or bottom of the hive, the former is always preferable; it should be remembered, also, that it is much better to give food *before* the stock is absolutely in want of it, than to wait till its store of food is exhausted. There are many reasons for this, well-known to every practical apiarian.

PROMOTING EARLY BREEDING.—At page 339, vol. vi., of THE COTTAGE GARDENER, I have mentioned the great advantages arising from early breeding, and recommended an increase in the temperature of the hives, as the most probable means of effecting this desirable result, by any means that may be the most readily had recourse to. I have there said, that perhaps binding the hives neatly over with hay-bands would be as little trouble and expense as anything. The end of the month will be the proper time for trying his experiment; and I have little doubt, but, if carefully attended to, the result will prove to be all that is desired. The entrances to the hives, if large, should be reduced, so as to leave them only sufficient for the easy ingress and egress of the bees.

VATER.—must not be forgotten to place water in the vicinity of the hives. Directed at page 305, vol. i.

HINTS TO COTTAGERS ON THE MANAGEMENT OF PIGS.

(Concluded from p. 135).

THE next thing after having fattened your pig, whether for bacon or pork, is to kill him and turn him into food. As a preparation for this he should be left fasting for twelve hours, and have only a very small slight meal for the twelve hours before that. Unless you are experienced, do not attempt to kill him yourself. It is much better to pay a shilling or two, and have the job done well, than to have the poor wretch mangled and torn about by inexperienced hands. To those who do kill their own, I say, avoid all unnecessary pain, do the work clean and well, and, above all, do not have anything to do with that brutal practice of putting the pig in the scalding tub before he is dead. You gain nothing by it, and it is abusing that power which the Almighty has given man over the brute creation.

But, although you do not kill for yourself, it may be as well to give you a few hints of what the butcher will want when he comes. There will be the scalding water wanted, and the tub to scald him in, a table to lay him on, and a stick to stretch the belly out when all is finished. Also, if you have got such a thing, a pulley and rope will be found very handy, especially if piggy is any size. Wherever you kill your pig, be careful that the other pigs do not get at the blood, as it will do them no good, but harm. One important thing to think of is the time and the weather. About Christmas is the time for killing, but if it be not cold weather then, by all means defer it longer, for a little additional fat will be no harm done. Close or muggy weather must by all means be avoided. A clear dry day, with a little frost, is the best that can be chosen. Instead of scalding, singeing the hair off is strongly recommended by some experienced pig-keepers, as imparting a fine firmness to the bacon, which they say scalded bacon never possesses. As this process may be new to some of our readers, we give an extract from a book in which this plan is advocated. "There are two ways of going to work to make bacon. In the one you take off all the hair by scalding—this is the practice in most parts of England, and all over America; but the Hampshire way, and the best, is to burn the hair off. There is a great deal of difference in the consequences; the first method slackens the skin, opens all the pores of it, makes it loose and flabby by drawing out the roots of the hair; the second tightens the skin in every part, contracts all the sinews and veins in the skin, makes the flitch a solidier thing, and the skin a better protection to the meat. The taste of the meat is very different from that of a scalded hog, and to this chiefly it was that Hampshire bacon owed its reputation for excellence. As the hair is to be burnt off, it must be dry, and care must be taken that the hog be kept on dry litter of some sort the day previous to killing. When killed, he is laid upon a narrow bed of straw, not wider than his carcass, and only two or three inches thick. He is then covered all over thinly with straw, to which, according as the wind may be, the fire is put at one end. As the straw burns, it burns the hair. It requires two or three coverings and burnings, and care is taken that the skin be not burnt or parched in any part. When the hair is all burnt close off, the hog is scraped clean, but never touched with water. The upper side being finished, the hog is turned over, and the other side is treated in like manner." This of course only applies to pigs intended for bacon, and whether the flesh really is improved we do not pretend to say. If any one be disposed, let him try it, and then judge of its merits.

After the pig is killed, and the inside cleaned out, and all other operations necessary have been completed, he must hang for twenty-four hours to get cool, and the next day be cut up; and now, whether your object is pork or bacon, take the meat and rub each piece well with salt, saltpetre, and a small quantity of sugar, well mixed together, and then put the meat thus dressed into the pickling-pan, and let it stand two days or more according to the weather (in very dry weather it may remain three days), and then fill up the pan with cold water, and let the pork remain in this brine a week or ten days, turning it occasionally, or, if the pan be not sufficiently large to let the brine cover the whole of the meat, it must be turned every day; when this brine looks thick and full of drainings, take the meat out and put

it in another brine made in the following proportions: 2 lbs. salt, 1 gall. of water, $\frac{1}{2}$ lb. moist sugar, 2 oz. saltpetre, 2 oz. Bay salt; this to be boiled, and having taken the scum off, put it in the pickling-pan; there let it remain till quite cold, and then put the pork in; the thinner pieces will be ready for use in a few days, the thicker, such as are intended for hams or bacon, may remain a month. After the meat which is intended for the latter purpose has remained in this brine a sufficient time, take it out and thoroughly wash it with water, and then let the water drain off the meat, but do not let it dry, and roll it well in pollard or bran, and hang it up in some dry place: when dry, *but before the flies come*, put it away, well buried in bran, pollard, or malt combs, in boxes, and there your bacon will keep till wanted.

By this means of curing ham and bacon, which we always follow, and I hope nobody may have worse bacon or ham than we do, all the trouble of smoking is avoided, and it will answer every purpose. A little experience, and one or two precautions, and a little care, is all that is necessary. When the pork is being salted, the place should be cool, but always admit of a free circulation of air; confined air, though cool, will taint sooner than the mid-day sun accompanied by a breeze. In the next place you must be careful of the flies, and get your bacon stored away in the boxes before they make their appearance.

If you prefer the taste of smoked bacon, it must be hung in some chimney-corner where the smoke arises from a wood fire, and two precautions are necessary; first, to hang the flitches where no rain comes down upon them; second, not to let them hang so near the fire as to melt. They should be hung there after they have been taken out of the last brine, and been well-dressed with pollard. As to the time required, it of course depends upon whether there is a constant fire beneath, or whether the fire be large or small; a month may do if the fire be pretty constant. But over-smoking makes the bacon rust. The flitch must not be dried to the hardness of a board, and yet it should be perfectly dry.

Another method, also, is as follows: a small hut is set apart for the purpose, and all apertures are closed except one at the top, the bacon is suspended from the ceiling, and the floor well-covered with oak sawdust (the sawdust of common deal imparts a flavour of a disagreeable character) which is lighted, and burns with a low smouldering glow, giving out more heat than if it were actually flaming.

For those who have not either of these conveniences, and only a small quantity of bacon to dry, a sugar hogshead with the bottom out, and the sawdust put on the ground at the bottom, but so as not to touch the sides of the barrel; the meat being suspended from the top, has been found to answer very well.

But why all this trouble, when simply drying, as I have described above, will answer every purpose? There are several other ways of pickling than those mentioned above, but this we have found the best.

But at the time of killing your pig the lard must not be forgotten, and if nicely put down will last a long while for all the purposes for which it is wanted. The lard is the inside fat, and when taken out it must be cut in pieces, and then put in a saucepan, and gently melted very slowly with a little salt, and run through a sieve into a pan, or bladder, which has been carefully cleaned.

Besides this there is the liver and the crow, which will make a capital dinner on pig-killing days.

One word more about pigs and I have done. Keep a correct account of all money you spend, and get for your pigs; this is the only way to be sure that they pay you, and to those who keep pigs, I say, go on and prosper; to those who cannot make them profitable, lay the fault at your own door, not the pig's; look more attentively into the matter, observe what has been said in this article, and read other books on the subject; to those who do not keep them already, the sooner you begin the better. But to all I say, treat your pig kindly, for the better you treat him, the more service he will do you.

W. H. W.

COCHIN CHINA FOWLS.

I AM exceedingly sorry that any person, who has flatteringly "taken Anster Bonn for a guide," should, whether

from a want of exactness in description on the part of the writer, or misapprehension on that of the reader, find himself misled on the important subject of Cochin China fowls. Like H. B., I read Mr. Payne's account with interest; but, unlike him, I read without astonishment. Judging of Mr. Punchard's stock by comparing them with my own, I can very well credit the account which is given, especially when we take into consideration two circumstances, which I think H. B. has rather overlooked: first, that the Cochin China hens need not of necessity be employed in the vulgar task of hatching and rearing *all* their own chickens, without assistance from common hens; and, in the second place, some of the 500 chickens would commence laying before leaving the parent stock; for it is well known that these fowls will (much to the annoyance of their owners) sometimes begin to lay as early as fourteen weeks old—an age when their time and energy would be much better employed in realizing size and weight. A curious instance of this was shewn in the description of one coop of chickens at the Birmingham show which is just past. Mr. Edward Simons, of Birmingham, exhibited six chickens, hatched in September, the produce of a cockerel and pullet hatched about the 12th of February. I have not kept any account of the eggs laid by my own hens, but the supply has been most abundant; and I remember noticing that one hen, in the spring, laid three dozen eggs without missing a day. The number of chickens specified in Mr. Payne's letter can hardly be reckoned two broods to each hen; for a hen that did her duty so badly, and hatch only seven chickens and a half, would scarcely be indulged with the pleasure of rearing them herself without an additional number: two such broods might be placed together under the care of a fine Cochin China hen, thus leaving the second delinquent at liberty to recommence laying at the end of five weeks, which those so served will frequently do. I hope my corroboration of Mr. Payne's account will not drive H. B. to utter despair of getting the true sort; if I could, through the courtesy of the editor of THE COTTAGE GARDENER, have the pleasure of communicating with him, I could mention many stocks as good as that of Mr. Punchard—so deservedly celebrated.

The vexed question of weight I approach with greater diffidence, as this must so much depend on good crossing, rearing, and feeding. One celebrated breeder, the present occupant of an old manor-house, has at command (I never counted how many) dozens of stock-houses, capable of being turned to excellent account in rearing poultry, when not otherwise occupied. His favourite hens have the run of an excellent kitchen-garden, an indulgence which most fowls would be scouted for even thinking of. When the chickens are a few weeks old, they and their mothers are removed to a stack-yard, the very sight of which is enough to delight the heart of any hen. When cast off by the mothers, the young ones are sent to another of his farms, where, I believe, they remain until the owner has occasion to select his perfect specimens with which to delight the spectator at the Birmingham show. With these most abundant appliances for raising fine birds (in which this gentleman is by no means singular), contrast the limited space, so cleverly turned to account, described in THE COTTAGE GARDENER, of Dec. 25th; and with the care, observance of cleanliness, and good feeding which the writer bestows upon his favourites, contrast again the irregular attention under which many fowls suffer; and with these contrasts before our eyes, it is not strange that they should greatly vary in size. That enormous sizes are attained, is quite incontestible; but those who have, perhaps, only kept these beautiful fowls for a year or two, should not be discouraged if they, *at first*, fail to reach the superiority in this particular, which is only to be gained by knowledge, experience, judicious crossing, favourable locality, and high feeding. I do not myself consider mere size of great importance, and in this opinion I am borne out by the decisions of the judges at the Birmingham show. The chief prizes for Cochin China fowls were awarded to Mr. Sturgeon and Mr. Andrews. The cock in Mr. Sturgeon's pen weighed 104 lbs., that in Mr. Andrews's 84 lbs.; and there was a similar difference in the weight of the hens, yet the high breeding of both lots placed them on an equality.

At the Birmingham show of 1850, Mr. Sturgeon, and I believe some others, shared the honours with Mr. Punchard. That gentleman's poultry, although they have only lately

chanced to be mentioned in *THE COTTAGE GARDENER*, are far from being secrets to the lovers of the Cochon China fowls. It is quite true that he has purchased from Mr. Sturgeon, but, like all who are desirous of forming a choice collection, he does not breed from one stock, but makes additions to his poultry-yard whenever choice specimens present themselves.

Respecting the final dispersion of the superfluous fowls from the choice stocks in the kingdom, the prices which *I* know to have been not only marked on the pens, but given at Birmingham, is a proof that choice birds are soon scattered, thus continually multiplying stocks of these really valuable fowls, without, *I think*, a chance of at present sufficiently supplying the country.

ANSTER BONN.

LAYERING THE HOLLY.

HAVING occasion last spring to remove antagonist leaders from two Madeira hollies, instead of cutting them away at once, I bent them down, and secured them to the ground with strong hooked pegs, making layers of the young wood, which was spread out and fixed by laying heavy stones upon them, filling in about them with sandy soil. The layers were tongued as usual. The stems being strong (two inches in diameter), to enable me to bend them, I had to slice away fully three-fourths of the wood from the lower side for nearly two feet. This was done about the middle of last February; and on the 4th of November, I found the layers so strongly rooted, that I took off four dozen fine plants, which have done very well since. The tongued parts were scarcely callused, but clusters of roots were freely produced from the layers where covered with soil, especially when in contact with the stones. Thus there was effected in less than nine months what is generally considered to require a second year to accomplish. This I attribute to the severe cutting of the stems when bending them, as well as the use of stones for securing the layers, and intend to try the effect of the same method upon other plants which are found slow in rooting.

C. K. C.

THE DOMESTIC PIGEON.

(Continued from p. 203).

THE UTILITY OF PIGEONS.—At the commencement of the present century there was in France a general proscription against pigeons, and every one, to disguise his real intention, exaggerated, as much as he could, the pretended destruction occasioned by these birds. The real end proposed, and the one on which the least was said, was to put out of sight the signs of a feudatory custom. The dove-houses were everywhere pulled down with the same design that the vanes were removed which surmounted the pinnacled towers and the castles with drawbridges. It has, however, been discovered that pigeons do no injury to the roofs on which they alight, because they never scratch, and their weight is not more than six or eight ounces at most. Some bricklayers, on the contrary, say that a roof where pigeons assemble in great numbers is more easily kept in order than any other, because these animals throw down the dirt with which it is encumbered, and display the ravages made by time.

In agricultural countries, where the productions of the dove-house form an interesting branch of the revenue, the cause of the pigeon has been pleaded with great advantage; the injustice of the accusations made against them has been proved, as well as the injustice of the decrees which have caused their banishment by condemning them as the greatest enemies of agriculture. Pigeons never scratch on the earth, and, consequently, cannot uncover the grain that is sown. Their timidity prevents their following the labourer while he is sowing, or even alighting in the field before the harrow has passed over it. If they come afterwards, instead of doing harm, they do good, by carrying off the grain that is not buried, and which, nevertheless, would vegetate sufficiently to injure the growth of the good plants, whilst it would never itself arrive at maturity. Moreover, we have made researches sufficiently proving that the pigeon does not diminish the production of the harvest, for, on opening its crop, whether in seed-time or any other season,

we never find in it anything but the grain of weeds; or if it chance to contain any grain used by man, it is only in an eighth-part at most, and that generally of a bad kind.

The husbandmen weed their fields very carefully as soon as the obnoxious plants appear; the pigeon does better, for it destroys them by taking away the seed as it falls to the earth. We think we may safely say that one sparrow is more destructive to the harvest than two pigeons.

M. Beffroy, a member of the Agricultural Society at Paris, has read, at one of the meetings, a note on this subject, where the following passage is found:—The services the pigeon renders in this respect are such, that in the canton of Dizy, in the department of Aisne, part of the Thierarche, where the most beautiful corn has always been harvested, they soon felt the loss of pigeons. The earth was covered with weeds which smothered the harvest; the straw was thin and scarce, the grain small, and it was difficult to clean it sufficiently, so as to render it to be so much sought after as seed-corn. The first cultivators have remarked it; and in taking the land from the lord of the manor, one of the conditions was that permission should be given to build a dove-house. This condition was fulfilled because it was necessary to insure the harvest, and, in many places, the dove-cotes were raised at great expense. It has also been remarked, that the countries which abounded most in corn, such as Beauce, were those in which the dove-cotes were most numerous. It is certain that pigeons only eat the surplus of the crop, which would injure the abundance of the production; but if any cultivators still fear the contrary, they may easily employ a means which would increase vegetation, and drive away the pigeons; it consists in liming the seed, for these birds never touch corn which has been subjected to this operation. As soon as the seed is up the pigeon can no longer reach it.

When the French Government suppressed the feudal privilege of dove-cotes, it authorised every private person to rear pigeons, but on condition that they should be kept shut up during the time which should be determined every year by the corporation of the place; and they granted, which was very contradictory, the right to each individual to kill them at all times on his property.

We will here give an extract from a note of M. Vitry, read at the Agricultural Society of the Seine, establishing in a very precise manner the economical utility that France annually derived from these birds.

"I will now point out, by a very simple and clear calculation, the loss we have sustained by the destruction or depopulation of the dove-houses; and how much our interest, that of increasing subsistence, again reasons powerfully in favour of the dove-house pigeon, of which, in some districts, there is not a single one existing.

"At the time the sentence was carried against the pigeon, there were forty-two thousand communes in France; there were then forty-two thousand dove-houses. I am aware that in the towns there were none existing, and that few were seen on the rural commons surrounding Paris; but I also know that there were two or three, and sometimes more, in a great number of villages, and I think I shall be far from exaggeration in reckoning one dove-house to a commune.

"There were some dove-houses which contained three hundred pairs of pigeons, but to avoid all objection I will only reckon one hundred pairs to each dove-house, and only two broods a-year, leaving the third to replace the vacancies caused by accidents.

"Now, one hundred pairs per dove-house would produce a total of 4,200,000 pairs, but each pair producing only four pigeons a year, the result would be 16,800,000 young pigeons.

"Each young pigeon, taken from the nest at eighteen or twenty days, plucked and drawn, weighs four ounces. The 42,000 dove-houses then would furnish 64,800,000 ounces of wholesome food, and in general at a very low price; we have seen a young pigeon currently sold for four-pence in several districts.

"Finally, by dividing 64,800,000 ounces by sixteen, to ascertain how many pounds of meat the sentence against pigeons has deprived us of, we shall find that at the time of their proscription the dove-houses were entered for 4,200,000 pounds of good meat in the sustenance of France, and equally diminished the consummation of other animal substances.

"The suppression of the dovehouse is followed by another disadvantage, the loss of their dung, one of the most powerful manures for the land destined to carry hemp, which we have seen sold in some districts at the same price as corn."

(To be continued.)

VARIETIES OF PIGEONS.

SEVENTEENTH RACE.

POLISH PIGEON (*Columba polonica*).—These pigeons have a very thick and excessively short beak; a red band round the eyes, sometimes so large that the two circles it forms meet on the top of the head; the eye is often pearly; the head like a toad, that is, of a square form, marked with four very high protuberances, which gives it a physiognomy as singular as disagreeable; its head, however, is gracefully placed on a slender neck, reflecting different colours; the legs are very short, and its feet shod.

COMMON POLISH PIGEON (*Columba polonica vulgaris*).—



This bird is rather larger than the Swallow pigeon. Its plumage is of different colours, black, red, buff, streaked, grey, and all white. It produces well, but brings up very few of its young ones, in consequence of the shortness of its beak, which causes it great difficulty in feeding them. The handsomest have two small mushrooms, in the shape of a bean, on the under mandible of the beak; but, generally speaking, they do not form properly until they have attained a certain age.

SOFT POLISH PIGEON (*Columba polonica lenis*).—Smaller than the preceding, beak a little longer, and the ribbon of the eye not so large; iris frequently black. M. Vieillot thinks that the name has been given it from the softness of its physiognomy. It is very fruitful, and nourishes its young better than the preceding, but it has been nearly abandoned by the amateurs as not being very interesting for its beauty.

BLUE POLISH PIGEON (*Columba polonica cerulea*).—We think we ought to place this species mentioned by ancient authors here, but we confess that this bird is quite unknown to us. Authors sometimes describe it as a species, sometimes as a variety of the dove-cote pigeon. Willoughby has described it under the name of *Columba barbarica seu numidica*, and represented it, pl. 34, under that of *Columba numidica seu cyoria*. Bresson, no doubt from him, has described it under the name of the *Columba barbarica*. We will transcribe literally the description he gives of it. "A very short beak; the eyes encircled with a wide band of naked skin, covered again with white sinewy pyramids; plumage inclined to blue, marked with two blackish spots on the wings."

CRESTED POLISH PIGEON (*Columba polonica cristata*); resembling the common Polish, but having a tuft behind the head. This variety would produce well, if, like the other, the extreme shortness of the beak did not cause it great difficulty in nourishing its young. It is now only commonly found in Germany.

(To be continued.)

COCHIN-CHINA FOWLS.

THE subject of Cochin-China fowls has become one of such interest to many of your readers, that I will not apologize for troubling you with a few thoughts thereon. The late splendid show at Birmingham has convinced me that the time is passed when it is necessary to look for excellence in imported birds. The Anglo-Cochin breed (if I may so term it) so far surpasses the original strain, as to render it a matter of unnecessary expense and risk to order birds, even if obtainable, to be sent from China; perhaps nobody knows this better than Mr. Sturgeon, who, without doubt, deserves every praise for the manner in which he has raised the breed. I doubt much, if you searched the province of Cochin-China throughout, you could match the birds that Mr. Sturgeon has at Grays. Uniformity of colour, added to weight, is, in my opinion, their great attribute. The hackle differing in no degree from the feathers of the body, is a splendid property in his blood, and to this all breeders must look if they desire to arrive at excellence. Unquestionably Mr. Sturgeon stands at the head of all breeders of this splendid fowl, and well he deserves his meed of praise for the courtesy and kindness with which he treats all who apply to him, is beyond any attempt of mine to describe.—

W. P. L.

STOVES FOR GREENHOUSES.

It is frequently enquired of you whether an iron stove will sufficiently warm a small greenhouse. A neighbour of mine, who is only a yearly tenant, being desirous to put up a small removable greenhouse, for the preservation of his plants during the present winter, and having an Arnott stove which he did not use, thought he could do so at a very small cost, and without the dirt and mess of masons in building a brick flue. On the space selected, there was already laid a brick floor of sufficient size, and there was also a wall of sufficient length, on the one side of the spot, the object being to make a greenhouse legally removable. A wooden frame was laid on the surface of the brickwork, each frame-light made as a separate window, and screws were used to fasten them together. After ten days trial, and a great deal of trouble and disappointment, it was found that the stove would not at all answer, chiefly for want of draft, but very much in consequence of its choking itself up with ashes, the removal of which caused a great deal of dust and annoyance to the plants. Moreover the lighting of the stove occasioned a great smoke; the iron pipes, which were carried along the length of the house, heated and cooled too rapidly, so that during the late frosts, the thermometer varied between 50° and freezing point during the night, and but for straw matting, platted on hurdles, and placed around the outside of the glass, the plants would have been destroyed. A stove-maker who was applied to, had the honesty to admit at once, that no stove would burn in a room with so little draft; and that carrying a draft by a tube under the floor would scarcely operate when the wind was not directly in the teeth of the draft-hole, and when it was so, it would cause the fire to burn out so rapidly that it would leave the stove and iron pipes very hot for an hour or two: and they would then cool as rapidly. A common brick flue at one end, carried along the base of the wall, with an iron pipe at the other to act as a chimney through the roof (which was a span one), now answers very well; I am convinced that it is cheaper and better to build a flue at once, even in a small greenhouse, than to try experiments and makeshifts.

A WORCESTERSHIRE MAN.

TO CORRESPONDENTS.

CULTURE OF THE GUERNSEY LILY.—We write this in answer to some of our correspondents, though in this case it is almost superfluous to do so, because of the extreme cheapness of the blooming roots which are annually imported from Guernsey, and are certain to flower, and because of the extreme difficulty of so growing the bulbs that have flowered, that they may bloom again; and besides that, we have, in our gardens, a species of the same genus (*Nerine Fothergillii*), that will easily flower annually, when of sufficient size and strength. This species is quite as handsome as the *Nerine sarniensis*, or Guernsey Lily. Supposing our correspondents possess some good bulbs of the latter, as soon as they begin to grow, which generally will happen about the middle of August, prepare to pot them. First procure some good loam, mix it with about one-third

of rotten leaf-mould, or one-fourth of well-decomposed hotbed manure; add a small portion of river sand, and mix them well together; let this compost be in a moderately dry condition. Then turn the bulbs out of their pots, and shake off most of the old soil; trim off all dead roots, and drain the pots well. For full-sized bulbs, 5½-inch pots will be the right size. Place a little of the roughest part of the compost over drainage, and then put the roots in the pots, holding the bulb in one hand, and gradually work in amongst the roots the new soil. Keep the bulb so high that when the pot is filled the top of the bulb may be quite level with the rim of the pot, and rather more than half-buried in the soil. When all are finished, give a good watering, and place them on a shelf about a foot from the glass, in a greenhouse, or in a cold frame, which must be covered up close every night, and be well protected from frost. Give air during the day in warm weather, and liberal supplies of water when the leaves are fully expanded. Every third time of watering mix a portion of liquid manure with the water. The grand point to aim at, is to encourage to the highest perfection the production of fine, abundant foliage fully exposed to the light. Keep them growing till February, and then gradually reduce the water and heat till the leaves decay, and the bulbs are reduced to a state of complete rest. Keep them in that state by laying the pots on one side, behind a north wall, protecting them from frost till June, then bring them out and give a little water. Place them on a layer of coal-ashes, on a warm border, then you will have done all you can to cause them to flower. As soon as the flower-buds appear, remove them into the greenhouse to bloom, and as soon as the bloom is over, replot them and the others that have not flowered, and repeat the treatment of the preceding season. We may venture to inform our readers that by such means the Guernsey Lily has been flowered in this country.

BOTTLING FRUIT.—A *Housekeeper* wishes to know how to bottle currants and plums, so as to preserve their colour and plumpness like those in the London shops. We shall be obliged by information on the point from any of our readers. We preserve green gooseberries perfectly by picking them when full grown, leaving on the stalks and calyxes, or noses, putting them into a dry glass bottle, corking it tight, sealing over the cork thoroughly, and burying the bottles corks downwards, so that their bottoms are about six inches beneath the surface.

TURF ON CHALKY SOILS.—A *Reader* obliges us by saying—"In looking over *THE COTTAGE GARDENER*, No. 12, September, 1849, to Correspondents, 'Turf on Chalky Soils (A Blade),' I was surprised to see your answer—"There is no mode of keeping this green in the droughts of summer except by watering plentifully." I beg leave to inform you that you are under a mistake on this point. I have a lawn, made 26 years ago with down turf, laid on chalk itself (the place having been a chalk pit), and which has always been so beautifully green, even in the hottest summers, that almost every person who visited me supposed I watered it. The greatest failure, or objection to chalk, is in the winter, when its natural moisture produces moss; the fine herbage, however, returns with the warmth of the sun in the spring. The downs that parch are chiefly those of a light, thin, porous soil, with a kind of rubble, or small flints, and a sort of chalk stone, or *bastard chalk*, subsoil."

SCOUR IN POULTRY.—*F. Marsh* will find an answer to her query in the following communication from another correspondent—"Last year a hen of mine, whilst sitting, was attacked with violent diarrhoea, so as to completely discolour the eggs, and to be herself as wretched as only a fowl can be when on the sick list. My remedy was cayenne pepper, given plentifully, in barley meal. Two days proved its efficacy, and I had not only the pleasure of seeing the old bird recover, but also of beholding nine fine young Aylesbys."—*W. Popham, Lethbridge.*

GOOSEBERRY CATERPILLAR.—*H. M.*, of Belfast, says—"The following old recipe for the total extirpation of the Gooseberry Caterpillar might be acceptable to many of your readers; I have known it in operation for upwards of 20 years, and have never seen it fail:—"Take advantage of a few dry days in the month of November, December, or January, and slightly fork up the earth under each gooseberry and currant bush, so far as the branches extend; saturate the earth so stirred up with liquid manure of full strength, giving it very freely close round the stem; repeat the same three or four times, at intervals of a couple of weeks; if regularly followed up every season, the result will be the total disappearance of them altogether, and fine crops of fruit to reward the trouble. It will not be necessary to give any other manure, as the watering will be found amply sufficient. It is possible there may be some few insects the first season, but after the second none will be seen. It might be satisfactory if parties that try this simple remedy would communicate the result through your valuable columns."

CALYSTEGIA PUBESCENS.—*Mrs F. K.* wishes to know where this plant and *Rhynchospermum jussinioides* can be purchased.

LIQUID MANURE. (T. A. U.).—You may apply this to your roses, as described at page 225. Add two gallons of water to each gallon of your house sewerage.

ROOKS, COCKATOO. (W. J. E.).—Our correspondent wishes to know if there is any mode of enticing rooks to build in the trees on his grounds? Also, whether anything can be given to a cockatoo to loosen the stumps of feathers remaining in its tail and wings?

SUGGESTION. (J. N., Shalford).—The table would be useful. If you will prepare it we will publish it.

FLAVOUR OF GREEN TEA. (Capt. B.).—There is no doubt of its having a more injurious influence on the nerves than black tea. You may obtain all the flavour of green tea by putting into the tea-pot, with the black tea, one-third of a dried bud of the black currant; if you put in more the flavour is too strong.

HEATING A SMALL PIT.—In reply to the enquiries of D. A. P., at page 234, W. X. W. writes as follows—"I only pay 1s. 6d. per cwt. for my charcoal; I cannot say how much a bushel will weigh, but my frame does not burn £2 worth of fuel per annum. Since I first made it public through your pages I have made some improvement; I have got a cylinder of cast-iron (an old steam-pipe, 10 inches diameter), and inserted the heating pipes, as before, at the bottom; and, in addition to the pipes

for top and bottom heat for one frame, I have inserted another pipe, which I have carried round a common two-light frame, containing geraniums, &c., and as yet have not lost one plant by frost or damp. I am confident, from the great heat of the exterior of the cylinder, that it would be sufficient to heat a small boiler cast on the cylinder bottom. I get my charcoal from a chemical manufactory, and probably it is cheaper in this neighbourhood, as there is little demand for it. I must say that I greatly admire the heating apparatus of Pannell, January 8th, and think it very well contrived."

PINES. (An Amateur).—Your pines, setting well after March, seem to point to a discrepancy between the heat and amount of light. Pray what can justify 85° of bottom-heat in the first week of January? It is amply sufficient for the hottest day in July. Most good pine growers are moderate bottom-heat men; our friend Hamilton is affronted if he hears any one talk about 90°. We should say from now until the middle of April, 76°, advancing gradually to 80°, and thence to midsummer to 85°, at which pertinaciously stop, and let the fast men go on by themselves. Why no syringing? and why such fear of a drop of water lodging? There has been too much of this fuss, originally applied as proper caution to the dung-pit men in winter. Mr. Hamilton keeps his Jamaica pines generally damp in the hearts, simply taking care to dry them once every day. We have little doubt the too rapid development of your early spring fruit is chiefly caused by unnatural bottom-heat, unaccompanied with a due amount of light, and that your good setting in March proves it. Do not keep them too thick, and lay into them with the syringe occasionally in the morning, taking care to ventilate freely for half-a-dozen hours afterwards.

VINE INARCHING. (T. A. V.).—Neither season will do, but by all means inarch, as you say, as soon as possible, taking care to clay well, to prevent bleeding. You will then have double chances if you should fail, which is next to impossible. They will succeed either way. Do not take your ligatures away too soon; their adhesion is treacherous all through the first season. They will succeed well inarched on the young shoots, but it is a delicate proceeding.

IRON STOVES. (Kappa).—We cannot aid you to an answer. The gentleman who furnished us with the drawing and description resided at Birmingham. An iron tray underneath would catch the ashes.

SEEDS. (Rev. J. M. G.).—Many of the seeds of perennials and annuals mentioned in *The Cottage Gardeners' Dictionary* are only to be obtained from abroad, or in private collections. You cannot do better than apply to the party you name.

GREENHOUSE. (An Old Subscriber).—The space tinted green in your sketch will do exceedingly well for a small greenhouse. Your note seems to refer to some previous communication. If so, you would excuse our forgetting its contents if you know the amount of our daily letters, and especially as we are answering this at a distance from home, and cannot refer to our memoranda.

MISLETOE. (J. N. Omagh).—We know of no reason against the Mistletoe growing in the north of Ireland. If you will send us a stamped and directed envelope, we will try to aid you. The *Oleander* may be grown in a cool greenhouse without bottom-heat.

STOVE FOR A GREENHOUSE. (A Lover of Flowers).—We know of no stove that is desirable for a greenhouse to preserve plants in during winter, if you can have no flue or chimney. The best, under such disadvantageous circumstances, is that advertised in our paper. Could you not have a hot-water pipe connected with your kitchen fire?

MR. TAYLOR'S HIVE. (Melissa).—Without admitting any claim which you advance, we will endeavour to get a drawing ready for our next number.

BROWN SCALE. (J. L. D.).—The scale insect, when in the *scale state*, is a female of one of the species of the genus *Coccus*, and is, at that time, incapable of locomotion, having, so far as the individual in question is concerned, done all the mischief of which it was capable. If examined carefully (which ought to be done before attempting its destruction), it will be found, at one period, filled with a thick fluid; in this case the eggs are not yet deposited, and the destruction of a scale insures, of course, the destruction of all its progeny. At another period, the scale will be found to be a mere dry shell, consisting of the shrivelled-up body of the female, leaving a cavity beneath, which is, at this time, filled with minute white eggs. It is now necessary to use greater caution, as, if the eggs are not destroyed, they, or any which escape destruction, soon hatch, and the young scale insect, which is very active, crawls to the younger parts of the plant. At a third period, the scale is found to be nothing but a scale, the eggs having hatched, and the young having left the shelter afforded by their parent's body, and taken themselves off to the tender parts of the plant. Of course, it is now of no use to take any more trouble about the old scale. Syringing the tree with hot water will destroy the young scale insects, and scrubbing it with a stiff brush will kill the female scale, but this must, of course, be done at the proper time, which can only be learned by the observation of each separate species of scale.—I. O. W.

MAURANDYA BARCLAYANA. (R. E. M.).—You have a large plant of this against a wall, and you have been advised to cut it down to six inches. A very good advice; and if you can carry it through the winter by covering it in frosty weather with a dry mat, straw, or fern, it will cover twice as much of the wall next summer. But this climber is very apt to go off in February, if we have hard weather.

GUINEA-FOWLS. (Y. Z.).—Guinea-fowls pair like partridges. To insure fertile eggs it is necessary to keep the birds in accordance with their natural habits.—D.

POULTRY. (Margaret).—The cock presented to you the other day as something good, but without a name; small, but very strong and fierce, with an immense tuft, mostly yellow, on his head and neck; short legged, with three toes before and two behind, and a large spur; feathers all mottled—black, yellow, and white, of which one is inclosed, must be a specimen of monrel elaborated for several generations, till it has reached

the perfection of ugliness. The thief who stole the hen on the way has secured a prize. It is for yourself to judge whether the produce of this cock with Spanish or other hens will be sufficiently curious to try the experiment.—D.

POULTRY (Frank).—It is impossible to give advice on such scanty data. If by "prodigious" you mean productive of eggs, the Spanish fowl will suit you both as to number and size; if you mean *productive of chickens*, they will not. Pure game fowls are not so much cultivated as they deserve by persons who keep poultry on a small scale.—D.

BEES (Ghyra).—"I have a hive whose board I wish to remove, and furnish with a clean one, but always, on gently lifting up the hive, the bees are active, and swarming on the hive-board itself. I have thought of wedging the hive up some cold night, and causing them to ascend, and then removing the board."—Exchange the floor-boards in the middle of a fine day, and when the sun shines brightly upon your hive, place the floor-board, with the bees upon it, full in the sun, and they will immediately return to their hive. Wedging up the hive at this season would be rather a dangerous experiment.

OLEANDER (A Subscriber).—The appearance of the leaves is owing to a strong sun shining on them when damp, and scarcely any moisture at the roots, or to a change from moisture and heat to dryness and cold. The appearance of the flower stems is generally the result of poverty and cold. Your greenhouse is too cold for its blossoms to unfold now. Give the plants a fair portion of water, and wait patiently four months more, and then, if the young shoots are at all healthy, you will not be disappointed in their blooming. Do not attempt to prune or stop until you see whether they flower or not. They should have had a sunny, airy place in the house last autumn; in fact, would have been as well out of doors in August and September. The matter will probably be alluded to more in detail.

MYRTLE LEAVES DIRTY (Ibid).—You must just sponge and wash again. Syringe freely.

GERANIUMS (Ibid).—These require now a temperature not below 45°, nor above 55°. Keep the *Hoya* at the warmest part of your house. Give neither that nor *Crassula* much water until the days lengthen an hour or two, but if at all shrivelling in their foliage, syringe several times without much wetting the soil.

CAMELLIA BUDS DROPPING (W. G. S.).—This often takes place when too many buds are left on—if you had been satisfied with the half of *thirty* you would probably have been more successful; also, from want of water, stagnant water, sudden changes, and a close atmosphere—your room in this dull weather would be too close unless you give air. The buds would open in a temperature of from 40° to 50°, with 10° more for sunshine. Examine the drainage; if right, use plenty of water, and as warm as the temperature of the room.

SULPHURING PIPES IN A GREENHOUSE (S. R. Lucas).—You may place it on eight feet from the boiler as you propose, and it will do no harm to your mixed collection of plants, unless you may have a few things making very young tender leaves, which might be removed. You would require, however, to choose a coldish day or night for the operation, or, if you made the pipes sufficiently hot to give off strong fumes, the house might be made too hot for the plants; but, after a time, a little air will do no harm, and give some of the fumed rascals a chance of emigrating. Leave the sulphur on the pipes; and then, until the most of it is volatilized, you will always obtain moderate fumes whenever the pipes are not hot enough to give it off. We doubt our pipes frequently during the season, and *never* have had reason to find fault with it, unless in cases previously specified. Though an enemy to the aphid, we have not found that sulphur is *quite* destructive to that gentleman; we would, therefore, recommend tobacco-smoke in addition. We have put on the sulphur with tobacco-water, but we found that made quite as *costly* and *dirty*, and scarcely so sure as giving them a *whiff* of the weed. We sometimes could wish that the *boy-men*, we so often meet *cigaring* it, were fixed in stocks in some insect-infested plant-houses, for then their *habits* might be turned to some good account.

AZALEAS.—An *Old Subscriber* is annoyed by the leaves turning brown at the tips, and then dropping off, leaving merely the buds. As they were "potted in good soil, well-drained, and kept in a stove until the flower-buds were full, and then removed to the greenhouse," we think it very likely that the plants were kept more than long enough in the stove, and that the change of temperature might have been too rapidly made. When ours have been too much chilled by standing out-of-doors, we have noticed the same thing. But do not discomfort yourself, for if nothing worse is the matter, they will yet bloom well, and make plenty of leaves. Besides, as previously remarked, many of the varieties are nearly deciduous, and especially if exposed to a low temperature after enjoying a high one.

CLIMBING ROSES (Rosa).—Your beautiful wire arches, 9 feet high, 5 feet span, and 2 feet 6 inches wide, will only accommodate a couple of climbers each—one on each side; but you may try four plants for the first few years; *Crimson Bourasault*, and *Madame d'Arblay* or *Garland*, opposite each other; then *Myriantbes* same side as *Boursault*, and *Felicite Perpetuelle* opposite to it. The best twelve climbing Roses are *Ruga*, *Thorsbergiana* or *Bennet's Seedling*, *Rose Angle*, *Felicite Perpetuelle*, *Princesse Maria*, *Myriantbes*, *Garland* or *Madame d'Arblay*, *Crimson Bourasault*, *Princesse Louise*, *Donna Maria*, *Leure Duboust*, and *Jaune Despres*. The two last require a wall. From our description of these you will be able to select for the second arch, and have it your own way. We would plant the circular beds with one kind of perpetual Rose in each—*Duchess of Sutherland* in one, *Barron Provoost* in another, and so on; but we would on no account have you tied down to our view of the matter; select from the descriptions lately given in our pages.

DEODARS (Y. Z.).—Unless they were planted out of pots without breaking the ball of earth about the roots, they ought to stand in very exposed situations, without supports after the first two or three years. We have seen them on high grounds in the north of Scotland, and doing very well. It is impossible to say "how many years they must be before they thicken in the main stems."

ZAUSCHNERIA (Ibid).—It requires only to be cut down to the ground after the frost kills the stems, the roots will push strong enough the following season.

VINCAS IN STOVE (Ibid).—They require to be kept rather dry now, to be cut down like geraniums about the beginning of March. After that, part of the old soil to be shaken off and repotted, and have a mild, moist heat until they begin to flower, and then they would do in a good conservatory for a while.

CALENDAR FOR FEBRUARY.

ORCHID HOUSE.

THE season has now come when the general *potting* of the orchids will be needful. Numbers will be growing, and then is the best time of all for potting. The materials must be provided in good time, in order to be in good condition. Fibrous turves of peat, the same of loam, sphagnum or white bog moss, charcoal, and broken potsherds, are the principal articles wanted. New or well-washed pots must also be provided. The turf should be brought under cover and placed where it will become partially dry. It might be laid upon the pipes or flues for that purpose. AIR, will during the month, be frequently necessary. To keep the house up to the mark of *proper heat*, good fires will be necessary, and if the sun should break forth, the thermometer will run up rapidly, and then air is necessary to reduce the heat. BLOCKS. The plants on these will require the syringe to be used daily; refresh such plants on them as need it, with new blocks, before the plants begin to push forth. BASKETS, renew when necessary. If the baskets are made of wire, give fresh sphagnum, and larger baskets, if needful. DENDROBES will begin to show buds of bloom, give water to and repot them as they need it. HEAT; the season of growth for most kinds of orchids being come, the heat may be increased 10° by day, and 5° at night. INSECTS must be diligently destroyed. MOISTURE IN THE AIR, increase during the month. A dry atmosphere now the plants are growing will cause them to grow weak and spindly, especially *Dendrobis*; let the pipes, flues, walls, and floor be diligently wetted every day, especially in the morning. POTTING, proceed with without delay; if the young and tender roots push much before this is done, there is great danger of their being broken off. Watering at the root to plants growing, must be given freely. Let all the walls, stages, shelves, window-sills, and the glass, have a *thorough cleaning*, to sweeten the air of the house. In potting, attend to the leaves and stems of the plants, sponge them well over in every part, nothing is so injurious to plants as having their breathing pores stopped with moss or dust.

T. APPLEY.

PLANT STOVE.

AIR, give freely on all proper occasions, but shut up early in the afternoon. CUTTINGS of various plants desirable to increase, may be put in towards the end of the month. DIVIDE HERBACEOUS PLANTS, such as *Achimenes*, *Bilbergia*, *Tillandsia*, and *Vriesia*, *Hedychium*, repot and divide also. IXORAS (specimen plants), repot; prepare young plants of, to make specimens, by potting, tying-out, and giving more heat and moisture. INSECTS, diligently extirpate, by every means, such as cleaning the plants with a sponge, smoking with tobacco frequently, and washing the pipes with sulphur-water to destroy or keep down the red spider. POTTING. This is the month to go through the whole of the stock and repot them; let batches of such things as *Achimenes*, *Gesneras*, and *Glorias*, be potted from time to time. WATER, give freely as the plants grow, and the days lengthen. SOILS, prepare for use by placing them under cover to dry and warm. SYRINGE. Use this instrument almost daily, to give moisture to the air, and refresh and cleanse the leaves of the plants, and to keep down the red spider. Let everything be kept clean and sweet, let no decaying leaves be seen, nor moss appear on the pots or walls.

T. APPLEY.

FLORISTS' FLOWERS.

AURICULAS and POLYANTHUSES, proceed without delay to top-dress with rich, light, well-sweetened compost. Water them two or three times during the month, giving it only in the morning; give plenty of air on every mild day, but shut up early, and cover up securely every night, for a sudden frost would cripple the blooms. CALCEOLARIAS, repot; sow seed of, keep clear of insects, and give air daily, to prevent damping-off; CARNATIONS and PICOTEES, attend to with water and plenty of air in mild weather. CINERARIAS, smoke frequently to destroy green fly; repot, middle of the month; give free supplies of water to, and plenty of air. CHRYSANTHEMUMS, put in cuttings of, latter end. DAHLIAS. Look over the roots, and remove all decayed bulbs. Set some in a warm place to start growth, and afford cuttings. FUCHSIAS, pot, latter end; put in cuttings of scarce sorts early, to afford good blooming plants in July. HYACINTHS, protect from severe weather, with hoops and mats. PINKS, in fine weather stir up the surface of the soil; press any that the frost may have disturbed down into the earth again. RAMUNCULUSES, plant early in the month, choosing a dry day for that purpose. TULIPS, shelter from frost and heavy storms of rain, snow, or hail. VERBENAS, look to, trim off all mouldy leaves, give water to when needful, and plenty of air every day, not actually frosty. WATER, give to all florists' flowers in pots. Should the green fly appear, promptly destroy it by tobacco smoke. Look after SLUGS in the frames or pits, and destroy them.

T. APPLEY.

FORCING HOUSE.

AIR, admit on all occasions, if safe. APRICOTS: see *Peach*. CUCUMBERS, keep good linings to dung-beds; sprinkle bed often; air frequently; bottom-heat 90° maximum. In houses, train regularly, stop occasionally, and give liquid manure, with a moist air heat of 70° to 80°. CHERRIES as *Peaches*, only a lower maximum—say 70° sun heat. CAPSICUMS and CHILIES, sow, &c. FIGS as *Peaches*, only a higher minimum—say 60°.

GRAPES, late, keep dry and cool; thin the berries. HEAT, in all cases, in proportion to, and advancing with, light. KIDNEY-BEANS, 65° to 70°; plenty of air, moisture, and a light situation. MELONS, sow; provide beds, &c.; air-heat, 70° to 80°; bottom-heat, 90° maximum. MOISTURE, constantly provide the air with, wherever fire-heat is used. NECTARINES as *Peaches*. PINES (*Fruiters*), rising, increase warmth and air moisture; liquid manure to the roots occasionally; (*Successions*) still dry if in dung pits. PEACHES, disbud, and pinch gross shoots; fumigate occasionally. POTATOES, get out successions. STRAWBERRIES, introduce plenty; keep moist air, frequent ventilations near glass; maximum 65°. TOMATOES, sow, b. VENTILATION, night and day, as long as air, moisture, and heat is secured. VINES, disbud early, and attend to thinning the berry; keep clear of all waste spray. Keep a mellow state of air, neither damp nor dry, but a permanency of air moisture. WATERING, attend to with regularity and precision. R. ERRINGTON.

ORCHARD.

APPLES, prune, train, and plant. APRICOTS, plant, train, and cover, b. BLOSSOMS, cover directly, to retard. CHERRIES, plant, prune, train. CURRANTS, plant and sow. CURRENTS, prune, plant, b. CUTTINGS of all fruits, plant, b. DRESSING, carry out of all borders; beware of the spade. FILBERTS, plant; hang catkins, and remove suckers. GOOSEBERRIES, prune, plant, train. GRAFT, collect immediately; put them in a cold corner; in May commence operations at, e. LAYERS, make. MEDLARS, plant. MOSS, remove; use brine. MULBERRIES, plant. NECTARINES, plant, prune, train. ORCHARD-TREES, finish planting and pruning; top-dress old ones. PEACHES, as *Nectarines*; apply sulphur and lime wash. PLUMS, plant, prune, train. PEARS, plant, prune, train. QUINCES, plant. RASPBERRIES, plant, prune, the. SUCKERS, remove from all fruits. VINES, plant, prune, train. WALNUTS, plant and sow. Watch for the scale, aphides, and other insects, and try to utterly exterminate them. R. ERRINGTON.

GREENHOUSE.

AIR, admit freely among hard-wooded plants, such as *Erics*, *Epacris*, *Diosma*, &c., when the atmosphere is clear, and the outside temperature from 35° to 40°. In damp, foggy, or frosty weather, it is better to use little firing, and keep the house more close, unless you have the means of heating, and so far drying the air before it is admitted—the drying, of course, to take place only when the air is loaded with moisture. When the fog gets into the house, light a little fire and give air, and it will soon be dispersed. All these plants will now want more water, but do not give it in dribbles; after doing it thoroughly, wait patiently until the soil is getting dry. Those in full bloom may have similar treatment, especially if the sun will raise the house to 55°. Those swelling and opening their buds, must not be lower than 45°, with 10° or 15° more in the middle of the day. AZALEAS and CAMELLIAS, place those swelling and bursting their buds in the warmest end of the house, and you may remove them to the coldest end when in bloom. Supply such rather liberally with water. Those to be retarded, keep as cool as possible, and not so moist. BULBS, *CINERARIAS*, and *PRIMULAS*, in flower, assist with manure-water; the double *Chinese Primula* give a warm corner, as it is (especially the white) a splendid object when well grown. The night temperature of these should not be below 45°, if desired to keep them in full bloom, with 10° more in the middle of the day. *Cinerarias*, for blooming, do best at this season in small pots; those desired to make fine specimens in May and June, should not now be allowed to be pot-bound, or be stunted any way, but kept slowly growing. *Forsythia viridissima*, *Deutzia scabra*, and *Weigelia rosea*, will yield their blossoms during this and the following month if slightly forced. Forced hardy shrubs keep at the warmest end of the house at first. *Begonia obliqua* makes a fine conservatory plant in winter, if the night temperature is seldom below 45°. CALCOLARIAS and GERANIUMS, keep at the best place for light and heat. All these soft-wooded plants require more heat than the hard-wooded ones; the former shift as necessary. The forwardest of the latter, stopped and shifted before Christmas, tie out and train. Place in flowering-pots those stopped some time ago, and now breaking; and stop more young plants for succession, to be shifted when the buds have broken again. *Fraxinea latifolia*, and *uniflora*, do well in a conservatory at this season, if they had previously received a little extra heat, after being allowed to become deciduous in the beginning of winter, the wood being well-perfected previously. FUCHSIAS, start some favourite kinds, if you can, in a nice, sweet, slight hotbed, as at this season they stand a little bottom-heat well, though, when fairly started, a medium temperature makes better plants than a high one. Cut them well down, and thin the shoots afterwards to as many stems as you may require. The young shoots taken off, treated as cuttings in the hotbed, under a hand-light, or shaded, will make choice summer and autumn plants. Repot those for the greenhouse by the end of the month, and prune back freely; those intended for cottage windows had better remain in their winter quarters for another month, keeping them rather dry, and as cool as possible, so that more room at present may be afforded to other plants. The same HOTBED would do for seeds, cuttings, &c.; and also for starting some *Artemises*, *Gesneras*, and *Gloxinias*—the two former either in the pots in which they grew, or by removing the tubers, and placing them in pans with light earth, until they grow a little; the latter either in their late pots before they spring, or, what will do as well, in fresh pots and soil, so that, whenever they start, they take hold of the fresh material. For FIRE, PROTECTION, DRESSING, and CLEANING, see last month. Insects will now begin to be busy, and the best antidotes are sulphur vapour and tobacco fumigation, but, above all, cleanliness and good cultivation. SCARLET GERANIUMS. Old plants, stored in pits, sheds, garrets, &c., examine. Remove all parts that are mouldy and damped. Dust with lime and charcoal, and expose more to the light, that the young shoots may break vigorous and strong. R. FISH.

FLOWER-GARDEN.

ANEMONES, sow; finish planting, b. and c. ANNUALS (Tender), sow in hotbed; admit air to daily; water slightly; cover with mats the glasses

at night; sow seeds of blue and white *Campanula carpatica* in heat, for autumn-flowering, e.; pot old plants of each, and put in heat for cuttings, b.; sow *Nemophila*, and other *Californian annuula*, to flower after autumn-sown ones; (Hardy) sow in borders, e.; for early blowing, sow in pots in a hothouse. AURICULAS, dress, and attend carefully those under glass, as the buds appear. BIENNIALS (Hardy), sow, e. BULBS, finish planting. CARNATIONS, plant, and shelter from cold winds. DARIAS, sow, and place tubers in hotbed, to break buds for shipping. Dress borders generally. EDGINGS of BOX, &c., may be planted and repaired. (See January.) Cut round the roots of *evergreens*, to remove about next July. *Evergreens* removed last autumn may have liquid manure in fine weather. *EVERGREENS*, plant in mild weather, e. GRASS, roll and sweep weekly. GRAVEL, roll, and weed in dry weather, weekly, and try the *concrete* system. HEDGES (Deciduous), plant, b.; (*Evergreen*) plant, e. HYACINTHS, shelter, for they begin to appear. MIGNONETTE, sow in pots, and place in hotbed, or hothouse, and greenhouse, for succession. NEATNESS, attend to everywhere. PERENNIALS (Hardy), sow, e.; plant suckers, slips, and partings of roots; (*Half-hardy*) uncover, if frosts gone. PLANTING of flowering shrubs, complete. POLYANTHUSES, sow; earth-up with rich compost. POTTED SHRUBS, prune, shift, and dress the soil; pot off bedding geraniums, &c., from stove pots. RANUNCULUSES, finish planting, b. and c. ROSES, prune strong ones, and leave some to prune in April for late flowering; manure with cow-dung. SOWING of tree and shrub seeds, complete generally. SUPPORT, with stakes, &c., newly-planted shrubs. TULIPS, shelter, as they are now appearing. TURF may be laid, and see that plants are in heat for cuttings, such as *Lobelia*, *Verbena*, &c.

Climbers, such as honeysuckles and jasmynes, should be pruned and trained in the early days of the month. Reduce to moderate-sized patches such plants as phloxes, asters, veronics, &c., otherwise they will occupy too much space, injure their neighbours, and harbour vermin. *Herbaceous plants* should be planted out from nursery-beds into the borders without delay. *Half-hardy* shrubs, &c., may have their shelters partially removed, closing them up again at night, according to the mildness or inclemency of the season. D. BRATON.

KITCHEN GARDEN.

ARTICHOKES, defend from frost. ASPARAGUS, plant in hotbed, and attend to that forcing. BALM, plant. BEANS, plant; earth-stir, and transplant from frames, e. BEETS, sow a little for early use; plant for seed, and dig up for storing any left in the bed. BORECOLE, sow, e. BROCOLI, sow a little, e. BURNET, sow or plant. CABBAGES, plant; sow; and plant for seed. CARROTS, sow on gentle hotbed for early use; attend early to thinning advancing crops, &c.; plant for seed, e. CAULIFLOWERS, attend to sowing, earth-stirring, removing all decayed leaves and slugs; plant out winter standing, should the weather be open and mild, and attend to spring-sown crops (see last month); sow, if required; prick out. CELERY, attend to earthing-up, protection, &c.; leave for seed, and sow a little for early use. CHERVIL, sow. CHIVES, divide and plant out. CLARY, sow, e. COMPOSTS, prepare and turn over. CORIANDER, sow. CORN-SALAD, sow. CUCUMBERS, attend to those forcing; prick and plant out; and sow in hotbeds. DILL, sow, m. DUNG, prepare for hotbeds. EARTHING-UP, perform when necessary. ENDIVE, still protect from wet and severe weather. FENNEL, sow or plant. GARLIC, plant. HORSE-RADISH, plant. JERUSALEM ARTICHOKES, plant. KIDNEY BEANS, sow in succession, &c. Keep a good supply of EARTHS in the dry for immediate use. LEEKS, plant for seed; sow, e. LETTUCE, plant out from frames, &c., of the winter standing, towards the end of the month, and sow in the open border. If short of plants, sow in frames on a gentle hotbed at the beginning of the month. LIQUORICE, plant and dig up. MELONS, plant out for early crops; sow and pot off; attend to this sort of work on a kindly calm afternoon, just before shutting-up time. MINT, force in hotbed; plant. MUSHROOM-BEDS, make in succession, and attend to those in bearing. MUSTARD and CRESS, sow in succession. ONIONS, sow main crop towards the middle to the end of the month; also plant for seed, if not done; and plant the Underground or Potato onion. PARSNIPS, take up where left in the ground till now; plant or leave for seed; also sow towards the middle of the month, particularly in light soils. PARSLEY, sow. PEAS, sowings may be made both of early and second on the same day, where the soil works well, as the one will be found a good succession to the other at picking-time; also to suit some unfavourable situations, it is well to sow in frames in small pots, or in sods of turf, which is by some thought best, to plant out when a good season offers; also attend to sticking, earthing-up, and protecting other forward crops. PENNYROYAL, plant, e. POTATOES, plant in hotbed of any favourite early kinds; this may be done from the first to the end of the month; also plant out during this month all the main crops, if the soil will admit of it, and plant whole sets in preference to cut ones; also look over those in store often, to keep shoots rubbed off. RADISHES, attend to (see January), and sow in succession either in border or hotbed. RAPE (for salading), sow; (*Edible-rooted*) sow. RHUBARB, sow in large pans, or open warm border, and attend to that forcing, either indoors, or cover up with pots or tubs and fermenting materials. SAGE and SAVORY, plant, e. SALSAFT, sow, e. in small quantity, for early use. SAVOYS, sow, m. and c. SCORONERA, sow, e. in small quantity, for early use. SEA-KALE, attend to that forcing; cover up in succession. SHALOTS, plant. SKIRRETS, sow, e. SPINACH, weed, sow, m. SORRELS, sow or plant, e. TANSY, THYME, and TARRAGON, plant, e. TURNIPS, plant for seed; sow, e. VACANT GROUND, dig; weed, &c. There is a right time and a right way of doing everything. Plant out in mild, open weather; wheel out manure, &c., on frosty mornings, or on a fine, dry day; make good use of the hoe on fine, dry days, in stirring among the various crops; look over all in-door stores in rainy weather; and tie the ends of new mats before they are applied to use. T. WEAVER.

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WEEKLY CALENDAR.

M D	D	FEBRUARY 5-11, 1852.	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
5	Th	Agatha.	30.794—20.508	49—39	S.W.	14	36 a. 7	53 a. 4	rises.	☺	14 16	36
6	F		30.148—20.772	46—25	W.	—	34	55	5 a 57	16	14 21	37
7	S		30.171—20.997	49—35	S.W.	19	32	57	7 21	17	14 25	38
8	Sun	SEPTUAGESIMA SUNDAY.	30.144—20.856	49—28	N.W.	—	30	50	8 46	18	14 28	39
9	M		30.375—20.336	51—36	N.E.	—	29	7	10 8	19	14 30	40
10	Tu	QUEEN VICTORIA MARRIED 1840.	30.649—20.366	42—23	E.	—	27	2	11 36	20	14 31	41
11	W		30.250—20.308	47—23	N.E.	02	25	4	morn.	21	14 32	42

BRITISH WILD FLOWERS.

CROWFOOTS—RANUNCULACEÆ.

RANUNCULUS.

SECTION WITH LEAVES UNCUT (Continued from page 263).

RANUNCULUS LINGUA: Great Spear-wort, or Crowfoot.

DESCRIPTION.—Leaves long, spear-head shaped, somewhat toothed, nearly stalkless: stem upright, many-flowered. A much larger plant than *R. flammula*. Leaves in length equal to many times their breadth, ending in a long taper point, but in *R. flammula* they are in length only three or four times their breadth, and do not end in a long point. Blossom large, deep yellow. Stem three or four feet high. Calyx hairy. Plant usually silky, with close-lying hairs; but the degree of hairiness seems to vary, and sometimes the leaves are entire. Nect. covered by a small scale. Seeds not rough, but marked with dots. Roots fibrous and perennial.

PLACES WHERE FOUND.—Wet pastures, sides of ditches, and ponds. Not common.

TIME OF FLOWERING.—June and July.

HISTORY.—Linnæus gave it the specific name of *lingua*, because it had been surmised that it is the *Lingua* mentioned by Pliny. The herb is acrid. Parkinson calls it "The Greater Marsh Spearwort."

RANUNCULUS GRAMINEUS: Grass-leaved Crowfoot.

DESCRIPTION.—Root tuberous, with several thick fleshy fibres, and crowned with the thready remains of old leaves. Stem about a foot high, round, smooth, erect, bearing from one to three or four bright yellow, rather large, flowers, and a few small stalkless leaves. Most of the leaves rise from the crown of the roots, on short sheathing stalks, grassy, narrow, sharp-pointed, milky green, numerous ribbed. Cal. quite smooth, spreading, not bending outwards. Nect. a tubular scale. Botanists have confounded with this several synonyms belonging to *R. pyreneus* of Linnæus.

PLACES WHERE FOUND.—Dry mountain pastures in Wales.

TIME OF FLOWERING.—May and June.

HISTORY.—Usually called Grassy Crowfoot. Its yellow flowers distinguish it from *R. pyreneus*, on which they are white. It was cultivated by Gerarde in 1596, and it seems doubtful whether it is really a native of our islands. Withering seems to intimate that it was first found here by Mr. Pritchard, in North Wales.

RANUNCULUS FICARIA: Pilewort Crowfoot, or Lesser Celandine. (See Engraving.)

DESCRIPTION.—Root fibrous, accompanied with many fleshy, oblong, annual tubers. Herb smooth, of a bright shining green, rather succulent. Stems either erect or recumbent, from three to ten inches long, branched, leafy. Leaves alternate, stalked, heart-shaped, angular or wavy at the margin, sometimes spotted with black. Footstalks longer than the leaves; dilated, membranous, and sheathing at the base. Fl. terminal, solitary, on long stalks. Cal. of 3, rarely more, roundish, concave leaves. Pet. elliptic-oblong, generally 9, often 8 or 10, of a golden yellow, as if varnished; turning white by the action of light. Nect. a small hollow in the base of each petal, closed with a scale.

PLACES WHERE FOUND.—Meadows, pastures, and hedge-banks. Very common.

TIME OF FLOWERING.—April.

HISTORY.—Some botanists have this as a separate genus, under the names *Ficaria verna* and *F. ranunculoides*. It is called *ficaria* from the tubers being shaped like the fig (*ficus*). Besides those tubers, bulbs about the size of a wheat grain, capable of growing, are sometimes found between the leaf-stalks. These fertile bulbs are the more needed because the seed usually fails. This arises from its

blooming earlier than the other Crowfoots, and consequently having its parts of fructification injured by frosts, though to protect those parts it has the power of closing its petals



over them more compactly than any other of the genus. Thus closed we usually find it in wet weather, and from five in the evening until nine in the morning. Linnæus tells us that in some parts of Sweden the young leaves, in spring, are boiled by the common people, and eaten by them as greens; but, though milder than most of the other species, it is rather acrid. There was once an ignorant doctrine of similitudes or "signatures," in medicine; a doctrine which taught that what was like any part of the human body, either in a healthy or diseased state, was beneficial for such disease. Hence the name of *Pilewort*, for its tubers resemble somewhat the Piles, and thence the plant was recommended as their cure. Parkinson says it is also called *Figwort*. Calpepper says that the decoction of the leaves and roots is good against Piles; and that made into an ointment and applying it to the places affected with Scrofula or King's Evil, he cured his own daughter. Goats and sheep eat it, but it is rejected by horses and cows. A small weevil, *Curculio dorsalis*, is found upon it. On this, and on *Ranunculus acris*, occur the little parasitical fungus *Ecidium ficarie*. It has attracted more than one poet's attention, and we remember Wordsworth's allusion to it as "the little humble Celandine," and Charlotte Smith, describing her early butterfly, says:—

With wavering wing he settles now
Where *Pilewort* spreads its blossoms fair;
Or on the grass where daisies blow,
Pausing, he rests his pinions there.

—(Smith's *English Flora*. Withering. Martyn's *Miller*. Parkinson. Ray.)

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 41.8° and 33.3° respectively. The greatest heat, 66°, occurred on the 10th in 1831; and the lowest cold, 8° below zero, on the 11th in 1815. During the period 97 days were fine, and on 78 rain fell.

ALREADY are our pages enriched from week to week with sound bee-keeping information from two of the most enlightened apiarians of the day—Mr. Payne, author of "The Bee-Keeper's Guide," and "A Country Curate," author of "The English Bee-Keeper"—yet their pens do not exhaust the subject, for we have now before us a goodly pile of manuscript with which we have been favoured by Henry Wenman Newman, Esq., one of the deputy-lieutenants of the county of Gloucester. This gentleman is a veteran apiarian, for during fifty years, spent partly at Thornbury Park, and partly at New House, near Stroud, in that county, he has devoted much of his attention to his apiary. The results of his long experience he jotted down from time to time, and they are now arranged in the papers before us, expressly for our pages. Our readers, before whom we hope to lay a portion weekly, will soon perceive that Mr. Newman says truth, when he wrote to us of these papers, "The remarks are all practical; I detest the marvellous."

We will only give one extract from Mr. Newman's prefatory remarks, as we wish to devote all the space we can spare to his practical directions, and that extract is the following:—

"The writer of these observations does not intend to go into long details, but is only anxious to publish the result of many years' experience in as brief a manner as possible; in fact, to give a plain unvarnished account of bee-keeping, subject to all the vicissitudes of the uncertain climate of Great Britain, and to avoid the too common error of a highly-coloured account of, perhaps, one or two favourable summers.

"The writer will also give some observations on providing pasture and flowers for bees in a country unfavourable to them.

"The following is a reply from a gentleman in Kent to the inquiry—If he kept bees? 'Yes. I began with one stock, and gave an old woman £5 to feed them; they increased year by year until I had nearly 100 stocks, but I never got any honey from them, and in the end they ate each other up.' What a true epitome of an overstocked country!!

"From the prince to the peasant bees are favourites, for it is known that our most gracious and excellent Queen and Prince Albert are ranked amongst the apiarians of the present day, an illustrious example well worthy of imitation."

PRACTICAL OBSERVATIONS ON THE MANAGEMENT OF BEES. By Henry Wenman Newman, Esq.

THE APIARY.

Apes hyemis memores laborant.
(Bees labour mindful of the winter.)

The situation of the bee-garden ought to be sheltered from the winds, and valleys are the best places for bees, as they have to descend with their heavy loads. Small running brooks, or rivulets, in the neighbourhood, are also most favourable, as the bees during the breeding season require much water; and where there is no running water, stone troughs ought to be placed, filled with pebbles, or pieces of wood floating on the surface, to enable the bees to alight and drink. The stocks, or hives, should on no account be placed very near walls; for if they touch these, every sort

of vermin has the opportunity to get at the hives, and during cold weather in the spring, the artificial heat of the walls tempts the bees to go out, to their utter ruin, as they become chilled and die. The aspect of the hives should be nearly south. The south-easterly aspect, in our uncertain climate, entices out the bees during frost, as above stated; and when there are sudden changes of temperature—frequently from twenty to fifty degrees of cold, with a north-east wind, in the spring—great havoc is made by the too early shining of the sun on them.

I will give the reader this instance of the sudden changes. In the last week in March, 1830, the thermometer in Gloucestershire ranged from 48° to 65°, wind s.w., for nearly a week; on the 31st of that month, at 2 o'clock p.m., it was 64° in the shade; at 5 p.m. a thunder-storm came on, the wind veered round to the n.e., and at daylight on the 1st of April the thermometer was at 20°! This was equal to a change in Canada: the snow fell for about fifteen hours on the 1st of April, and at midday on the 2nd the sun shone out. I shall never forget an unfortunate stock of bees, many of which came out at 13 o'clock; the greatest part fell in the snow and perished. On the succeeding days hard frost commenced, and on the 10th of April the thermometer was as low as 10°! So intense was the cold, that the milk was frozen in the dairy of a farm-house near where I resided.

The next requisite is to have the bees in the vicinity of good pasturage; a corn country is the best, as the artificial grasses and clover are the most permanent pasture. The hives should have no bushes or trees in front of them, and the bees ought to have a clear ten or fifteen feet in front, free from all interruption to their flight, and all weeds, grass, &c., should be cleared from them. Some writers recommend soot to be strewed round the hives, to prevent ants from getting at the hives.

Bees dislike all offensive smells; the burning of weeds near them should never, on any account, be allowed, as the smoke is most disagreeable to them.

The next consideration in the aspect is the danger of extreme heat, the injury from which affords the strongest argument for keeping hives clear of all walls, and with a thorough draught of air round them, for I have known many stocks destroyed by the melting of the combs, in the summers of 1808, 1842, and 1846—the last particularly. I find this injury arise especially where stones had been used instead of wood, for the hives to stand on. When the thermometer ranges from 84° to 88° in the shade, there is always great danger of the comb melting, unless the hives are shaded with boughs, or covered with wet cloths.

It is a subject for great regret to see how careless some people are about their bees. In my travels I have often seen them quite shaded by trees, and even the entrances quite blocked by weeds, or some flowers, or vegetables, growing near; and when you ask them how the bees get on, they say, "Oh! Sir, we have had very bad luck, two of our stocks have died." At one house where they kept bees, I found one stock with the hive two inches from the board, leaning against a wall. There were about a hundred bees in it.

In no case ought the stocks to be nearer than three or four feet to each other; but poor cottagers are from necessity obliged, for want of room, to place their hives very close together. Benches with ten or a dozen hives are detestable.

I will here recommend to those who have large gardens, to keep their hives far asunder, and not near the walks. The owner can then visit each stock without annoying any other. My own plan is to place all my new swarms as close as possible to the spot where they settle in swarming. By so doing none of the bees are lost; and a friend of mine calls it "colonising." The farther the hives are apart the better.

During the breeding season, from the end of March to the end of July, bees should be supplied with water regularly every day, if the weather be dry. It saves them long journeys in search of it. It should be within near reach of them from March until August.

As the bee pasture remains but a short time, many recommend transporting the hives to heaths and moors, which is a good thing, when they are near—but in England this is more of a theory than a practice. Who would trust his bees

away, ten or twenty miles from home? The "masses" are too mischievously inclined in England, to be trusted with bees, or any other such tangible property. Indeed, hives are not even safe at the doors of the poor cottager in this part of the world. There is no doubt, moving hives to distant pastures is done in some parts of the continent, and on a very small scale in Scotland, but it is fast wearing out.

Hives should never be moved from place to place in the bee-garden, as this is the cause of the loss of many of the bees, nor should they be turned in the winter to the north, as is now the custom with some bee-keepers. I do not approve of their being put into cellars in the winter, although, in a few instances, I have known no injury done.

M. Jonas de Gelieu recommends bees being put in the shade, but then it must be remembered that he lived in France, where the heat is more regular and intense. Bees in Great Britain seldom want the shade, as our very hot summers are, indeed, few and far between.

Virgil, who lived in Italy, also recommends shade:—

Palmaque vestibulum aut ingens Oleaster obumbret.

(A Palm or large Oleaster should overshadow the entrance.)

We have not much of the "Italian sky" in England. I have found, from long experience, that the shaded hives, or those in a north aspect, never prosper; who would think of shading his bees in the North of Scotland? Even in the West of England shade is not required above once in a dozen years, and then only for a few days.

(To be continued.)

ROOT CULTURE.

WE promised last week to say something about root-pruning, and as this is a most appropriate period for handling the subject of *root culture* in all its bearings, we proceed. In the first place, it does seem matter for astonishment, in casting a retrospective glance at the gardening operations of by-gone days, to find so many able gardeners of those times going through the annual routine of fruit culture, and keenly observing nature from year to year, without discovering the chief cause of unproductiveness in their fruits. Not but superior fruits were then produced, but it was a here-and-there, or a now-and-then, sort of affair, as compared with modern culture. We still have occasional complaints, to be sure, of trees proving too gross for their situations, but by whom are they made? Not by men recognised as sound practitioners, and who, casting away the film from their eyes, have advanced with the times. Every one of this class knows full well, that if trees are limited by a severe course of training in the branches, it will by no means answer to encourage a violent and uncontrolled root action. He knows, also, that if, through adventitious circumstances, he is placed in charge of trees that have been thus maltreated, a remedy remains in his own hands, and that root-pruning must instantly be resorted to.

We well remember, sometime about the year 1829, having suggested the practice of root-pruning very strongly in *London's Magazine*, quoting a strong example in corroboration of the utility of the practice from an extensive peach wall, the trees on which, planted by a predecessor, made stronger and longer shoots than we ever saw before or since. On the heels of that paper followed some very grave cautions to tree men, not to be misled by Mr. E.'s root-pruning affair, and such, too, from men who would not hesitate to transplant a gross tree, forgetting that the latter process as surely involved root-pruning, or root-breaking, if a more agreeable term. Now that the prejudice of that day is for ever swept away, people begin to see their path clearly; deep and rich borders, made wholesale at an enormous expense, are generally repudiated, and we hear of platforms, station making, artificial substratums, the use of more simple soils, combined with a top-dressing system, and

the application of liquid-manure in the moment of need; the effects from which, good or evil, are speedily removed.

To proceed with root culture, then, we may direct attention to five points.

1. *Top-dressing*.—This process is but too often confounded with mulching, from which it differs both in design and tendency. Top-dressing, in its proper sense, is the application of a *compost*, supposed to be the most perfect in texture and quality, to induce a surface tier of new fibres, to compose henceforth a permanent portion of the volume of roots. Mulching is but a screen, a regulator, guarding the roots against vicissitudes, which the tree is little able to endure, against heat, drought, and cold. Top-dressings are of immense benefit when combined with comparatively shallow planting, as the roots may be progressively increased according to the exact needs of the tree. To wearing-out trees, they are of great service, and indeed are as important to fruit trees in general, if on a dry bottom, as surface dressings to mowing land, producing similar effects. As a general compost for this purpose, we find some loam, half-rotten manure, and half-decayed leaves, an excellent mixture in equal proportions. If any one who possesses an old and worn orchard apple-tree, which bears too freely for its powers, will try our practice, he will soon perceive the benefits of a little attention in this way. Let him first remove all the surface soil he can loosen, without destroying fibres, and then saturate the soil all round, for many feet each way, with dunghill drainage, finally applying six inches of our compost. Let him also apply the pruning knife, according to last week's advice; and, in addition, if the tree be moss-grown, brush it over with brine. We will venture to say, that if he take a journey to the antipodes and back, he will not then know his own tree again.

It is not only to old trees and hard bearers that top-dressings are beneficial; young trees, planted on shallow soils, the staple of which proves too light, or, in other words, suffers from drought, are much assisted by such applications. Trees on the Paradise or Quince stocks especially, such having a tendency to root up the stem; and Mr. Rivers, a high authority, lays it down as a rule, we believe, that the Quince stock should be soiled up to the point of junction between it and its scion. Bush fruits, too, are much improved by top-dressings in alternate years. But to go through the merits of top-dressings in detail, would be to write a book.

Mulching.—Its character and mode of action was adverted to previously. Most good planters use a little over the roots of newly planted fruit-trees. Many have been the disputes between the theorist and the practical as to its tendencies; but however philosophical a few niceties may appear as drawbacks, we are assured that, rightly applied, other conditions being proper, mulching is of much service. Be it understood, nevertheless, that we have constantly used it in connection with our platform planting, and a stagnation is unknown to our practice; we fear not the imputed arrest of the evaporations. The abuse of the practice lies here—putting too thick a coating, using too rotten a material, treading and puddling it when placed, and the laying on a thick coating over trees in deep soils water-logged.

As to mulch being a non-conductor of heat, that is the very argument we seize on as an advantage. We plant in early autumn, and are anxious to arrest the departure of the accumulated ground heat; and besides, it is not the obtaining the greatest accumulation of solar heat that so much benefits fruit-trees, as the preserving them from severe depressions, accompanied with retained moisture; in fact, the maintaining what gardeners term a mild but certain bottom warmth. Mulchings are particularly beneficial on shallow and dry soils; on some of which it is almost impossible to excel without their annual renewal. Ours is a sandy loam, and we could

never succeed as we do in hardy fruits without top-dressings.

Side-root Culture.—We do not know whether our readers will understand this title, or its application, but there being, as the lawyers say, no precedent, we have coined a phrase. We would fain have them distinguish three characters of root, determinable by their position rather than any specific character; these are the surface fibres, the tap roots, and the side roots. Now these things have not been rendered sufficiently explicit hitherto; confusion has reigned in these matters, by no means agreeable to men of scientific acquirements, or even to practical men who love a definite notion.

We have, for many years, had much success in Asparagus culture; and although venturing on the confines of Mr. Robson's department for a moment, must beg to observe that our favourite point of practice, has been high *side-culture*, or, as a wag once paraphrased it, "feeding at the toe end." This, as applied to fruits, deserves much consideration. The cases in which it may be practised with advantage, are chiefly those where the trees have originally been planted in soil too poor, or of bad texture; it not being always expedient to root them up in cases of partial failure. A zone of new and fertile soil, within reach of the chief roots, will generally infuse vigour into the languishing system. Indeed, wearing-out or exhausted trees may get their lease renewed by these means alone. Bush fruit, too, especially gooseberries, the black currant, and the raspberry, are all benefited in their hour of need, by such means; and having operated thus in scores of cases, during the last twenty years especially, we can confidently recommend the practice.

Surface operations.—These we consider more as matters contributory to the decency and order of the garden, than as cultural operations; they consist in our practice of hoeing deep, and sometimes, what is termed pointing in the rising weeds, but the latter not more than three inches in depth: a practice, by the way, we do not recommend, and is a forced affair when labour runs short.

Where the garden consists of a sour and adhesive soil, forking about four inches deep may be practised with some benefit, as tending to facilitate the admission of the atmosphere, and by consequence to ameliorate. The platform mode, well carried out, will, however, obviate all this.

Root-pruning.—So much has been said on this head, time after time, that we merely advert to it as a part of root culture. We like best to perform it the moment the fruit is gathered; it may, however, be done any time but during May and June, during which months we would forbear. Much latitude is thus given to this operation, inasmuch as both the condition of the subjects, and the facilities of the cultivator, vary so much.

Somehow, expediency will be found to govern many garden operations, in spite of the enunciation and recognition of principles; and, in this respect, horticulture is by no means singular, for what is there of a sublimity character where mere expediency does not sometimes enter?

The readers of THE COTTAGE GARDENER will do well to attend closely to the subject of root culture before the ides of March.

R. ERRINGTON.

FEBRUARY NOTES FOR THE FLOWER GARDEN.

THERE was a letter the other day, asking how the new *Enothera vivipara*, or *prostrata*, should be propagated, so as to have a good supply of it ready for planting out early in May; and, being one of the newest of our seeders, it may be worth while to answer it thus promi-

nently, for the sake of young beginners, and as a peg to hang a whole string of suggestions on about the propagation of other things as well.

I can well understand how this question has arisen so early. We have always said that May is the proper time to propagate the old *Enothera macrocarpa*, when the shoots in the open beds had grown to the length of three inches or so; and last year I told how I got up a large number of the new one on a short notice at the very end of the spring. It was, therefore, very natural for a young beginner to suppose that the end of the spring was the best time to propagate all kinds of *Enotheras* that come from cuttings. Now, to let this idea make roots in the mind of even the humblest of our readers, would be far worse than that I should never root another *Enothera* as long as I live.

Every one who has the means of applying a little extra heat for all the soft-wooded plants that will be required for the beds this season—*Enothera* among the rest—ought to do so as early in February as he can get the heat in working order; and Mr. Errington has spared me the trouble of explaining the working of a dung-bed—the best heat of any for getting early cuttings—by his late article on "The Dung-bed." Every week that passes this month without seeing the whole of this most useful tribe vigorously moving, is a dead loss to the propagator. The first crop of cuttings should be ready for making by the beginning of March, no matter how humble the means may be. As to first-rate gardeners, who require immense quantities, they have their second crop of many things well-rooted by this time. I used to have them so, but this spring I must trust to the good-will of my old friends for all my propagation; and I may as well tell them at once that I shall require a good number of plants next May, to set off my place, as I am to be honoured with some great visitors, who will be likely to say all sorts of things about me if I do not come up somewhat to the old mark.

The *Enothera vivipara* may be put into a hotbed at once, and it will stand as much heat as Mr. Latter's cucumbers, without being any the worse, but it will grow very weak, and so it will in the open ground at first going off, yet no one need be afraid of it, let it grow ever so weak. Every top will make a sure cutting, and two inches will be long enough at first; let these be put in just like so many verbenas cuttings, or fuchsias, or indeed any other little soft cuttings, and in a smart cucumber heat they will root in ten days, and in ten more days their tops will be ready for another batch, and so on up to planting-out time—so much so, indeed, that from a single good plant of it five hundred young ones may be had between this time and the middle of May; but after having them we must keep in mind to plant them in very poor, light soil, otherwise they will disappoint us to a certainty.

Those who grew it last year, and preserved their old plants, will be better off; and they need not disturb it before the middle of April, when if it is taken up and well divided at the roots, allowing every little bit to have a space of nine inches all round in the new arrangement, it will be in bloom by the end of May, and continue so to the very end of October; or, if it should offer to grow too much into leaf by a wet summer, run the spade under it on one side, and heave it up a little, so as to tear off a good portion of the roots; or, in fact, root-pruning will settle it down to a most useful little edging for the rest of the season. The spade may thus be used any time in the growing season, not only for this but for many others, to subdue their pride, and bring them to do what we require of them.

Although it is an easy way, and a very simple way too, to get a stock of the *Enothera macrocarpa* from May cuttings, it is not by any means the best way, as a whole season is lost before they flower, or, at any rate,

before the plants make a tolerable appearance. This *Enothera* makes long fleshy roots, with a strong neck, or root stock, at the surface of the ground, and it is a plant that does not do at all to be divided at the roots, like the last, but it may be taken up now and potted, or plunged, without pots, in a hotbed, just like a Dahlia root, and it will go on giving cuttings till you are tired of it, and every cutting will root in about three weeks, if they get the same treatment as they give to Dahlia cuttings, that is, a brisk bottom heat, but they want no close glasses over them if they are in a good hotbed; they will root quicker, however, under bell-glasses, and are more safe that way in a common propagating-house. Plants of it raised this way, as late as the middle of April, will be in flower nearly as soon as the old plants that were not disturbed; and, besides being a good bedder, this plant is an excellent rock plant, if very young ones are turned out from the cutting-pots, and attended to properly for the first part of the season. The large winged seed-pods are, of themselves, very ornamental and interesting among the stones and spas of a nice rockery.

Enothera taraxifolia is fully as good for beds as *macrocarpa*, and yet we seldom see it, because it is more tender than the other, and people do not ask for it at the right season. Nurserymen manage to propagate it slowly by dividing the crowns, and, I believe, by cuttings from forced plants in the spring, but plants of it, thus produced, seldom come to much, except, perhaps, in the hands of some of the most careful gardeners. The right way to get a good stock of it, and to keep it, is by seeds, and by treating the seedlings as biennials, and securing them in cold frames over the winter. These seeds should be sown before the end of February, otherwise the half of them never come up, nor will they come up well in heat above that of a greenhouse or close cold frame. The best way to get seeds to ripen, is by planting one or two of the strongest plants out under a south wall, in May, and removing the flowers very gently as soon as they begin to decay, or even to close, because they hinder the office of the great long pistil or female organ, and often destroy it altogether before the seeds are inoculated with the pollen. This plant is well worth enquiring after, being more suitable for small beds than the *macrocarpa*.

Some years since, I used to have a beautiful bed of another *Enothera*, or evening primrose, called *speciosa*, which kept in bloom a long time, but no one seems to have it now. I made annual inquiries about it for a long time, without being able to get it. About four years since, Mr. Appleby's employers promised to get it for me from some one in the country, I think near Manchester, who was the only possessor of it at that time, as far as they knew. I hope we shall hear more of it from some quarter or another, this spring, as it is certainly a most desirable plant for the herbaceous border, and I should think that, by dividing the roots after the manner of the Campanulas, it would flower in a bed the whole season. When I grew it, sixteen years ago, it spread all over the ground like couch-grass, and every morsel of the roots made a plant. You might chop them like parsley, and then sow the fragments like seeds, and the least particle made a plant which flowered the same season.

Almost every writer on gardening, myself among the rest, makes a point, about this time of the year, to urge on all kinds of planting, so as to get it over before the end of February, but this year I shall change the tune, and not only urge, but give positive advice, to *unplant* forthwith. In a circle of no more than two miles in diameter, round my house, there are as many cottage gardens, if not more, of the best class, than are to be met with in the same space in any other part of the country, and they were all made and planted within the last

twenty years, and I can safely affirm, that more than one-half of them have three times more plants in them than there is room for; I mean trees and shrubs. Where there is one good plant in them it is smothered by five indifferent ones, and in a few years more, you could compare the whole to nothing else, so justly as to the old lean-to greenhouses, with sloping stages, filled with a sloping bank of miserable ghosts of "greenhouse plants." Now if all this is to be seen within a few miles of St. Paul's, what may we expect in the provinces? And now that I see all this, how can I have the conscience to keep in the old tract, and say to the cottage gardeners, get your planting finished off-hand forthwith? Talk about introducing fine new things for such places as we generally write for, why I might as well talk about fairy tales, for there is neither place or space in the gardens that I have access to, to plant an extra cabbage-plant in. *What is really wanted is to grub up more than one-half of the common stuffing, and re-arrange all the plants that are good for anything, making room here and there for novelties, and better things out of the old lists.* I would not touch a plant, however common, if it is used as a necessary screen in a boundary; but if I had my way, I would skeletonise half the villa gardens round London, and re-model them afresh, and this is the best time in the year to set about the work. Some day or other, I shall write a chapter on the "rise and progress" of the cottage gardens, or villa gardens, as they used to call them round London, and if I do not lash a race of planters, better known by the name of "Speculative Builders," my name is not

DONALD BEATON.

ECONOMICAL GLASS HOUSES—GLASS WALLS.

WHATEVER may be the ultimate result of the millions of gold pouring in upon the world from the diggings in California and Australia, it has as yet produced little effect in raising the money value of articles; while little, if any, of the increase could have found its way to the pockets of the gardening public, if we be warranted to draw a conclusion from the increasing desire to combine cheapness with utility. True, you will yet meet with many of the old school, contending that cheapness is just another name for the ugly and the worthless, and that whatever is beautiful and serviceable in material must be handsomely paid for; but the preponderating numbers are they who assert that cheapness and fitness for a defined object *can* be attained, and constitute, in fact, the only conditions in which they can entertain the matter at all.

Both of these parties are equally right according to the ideas they entertain of beauty and fitness, for I have yet to learn that the most refined taste can describe anything as ugly and mean, the very slightest examination of which stamps it with seen utility, and fitness for a contemplated object.

Hence, in these pages, I read, with no common interest, the account of the five-pound greenhouse. Hence, with equal interest, will I wait the result of keeping cows, and growing vines, under the same glass roof; feeling *almost* certain already, that if the glass makes not the *byre* too cold in winter, the vines will not have much to incommode them in summer. Hence, too, with similar feelings, here and elsewhere have I read the plain lucid statements of Mr. Rivers, concerning his orchard houses—a step in the right direction in these times, and for which, if we are not, we ought to be, grateful; as, all things considered, it is about the *cheapest* plan for covering a space with glass that has been propounded. And, with mingled feelings, I have read statements and advertisements about these *hollow glass walls*, with a single or double trellis between them;

admiration for their beauty—confidence that gardeners *could* make them answer—but very great doubts indeed as to the cheapness and economy which they are to introduce; not only in the first cost, but in future management and saving, in heating and protecting mediums. The statements, enquiries, and praises that have reached us, dwell chiefly on the importance and economy, ultimately, of getting rid of these mediums altogether, while our opinion on the matter is, that success will mainly depend not upon the *want*, but the *presence*, of one or both of these mediums in addition to the glass. Our reasons we have not room here to give. That such beautiful walls will be erected we have no doubt; but the absence of a necessity for careful attention, or their being economical, will constitute, in our opinion, slender claims to their recommendation. I should like very well to enclose with glass present existing walls; but I would con over the matter a thousand times before I would pull such a wall down to put a glass one in its place.

There are two matters here worthy of being noted down by those friends who, like many of our correspondents lately, wish to possess an economical house. First, if you want advice, consult these pages, and any intelligent gardener or nurseryman near you, and most likely in all essential matters you will find perfect agreement, and on that advice you may safely act. But, secondly, if you want to see a model, where economy and fitness for a defined object are apparent, visit the nursery rather than the gentleman's garden. How is this? I will tell you.

Until lately, and too much even now, very provokingly, when a house was to be built, the opinion of each and every one that could talk about columns and pilasters, and refined taste, was considered of far more importance than the ideas of the gardener, whose very experience would have pointed at once to the essentials. Hence many of the disappointments and hard up-hill work that gardeners have to contend with. Often a few cheap alterations would be of great service, but the faintest breathings about such things are nipped in the bud, with something like "If once begun, there is no saying where the ending would be." Splendid exceptions, fine models of houses, you *will* find in numerous private establishments, but as the *rule*, look for these in a commercial establishment. It would be ruinous for a nurseryman to be encumbered with an unsuitable house. If your means allow, use ornament and fine workmanship at will, but the primary principles cannot be departed from with impunity. I may state here that I have not yet seen these cheap houses at Mr. Rivers's, but twelve months ago, last autumn, I saw a very large double span-roofed house, built in a similar way, and boarding for side walls, filled with young roses, at Mr. Lane's, of Berkhamstead. This huge house was heated by one furnace and a short flue, on a modification of the Polmaise principle, and though the temperature was high, the atmosphere was pleasant. I would have mentioned this useful economical house before, but I lost the notes I made. One thing I may mention, the boards were coloured, or painted, a light colour, which is the best in such circumstances for well-seasoned wood; if green, it should not be painted at all. Tarring wood, in such circumstances, is next door to a slow process of charring.

As a sequel, and in consonance with these remarks, I hero introduce the statement of a correspondent: "I propose building a house to boil roots for my pigs, ten feet long, six feet wide, inside measure. At the back of it, facing the south, I propose having a greenhouse the same size, the partition wall between the two houses to be nine feet six inches high, of four-inch brick-work. My copper will be placed against the wall, and nearly in the centre of the building; the heat from the copper and chimney to heat the greenhouse or striking-house;

a steam pipe from the copper to run through the greenhouse if necessary; water in the boiler to be heated on frosty nights. The back wall of the root-house to be six feet in height, of stone; roof, slate; the front wall of the greenhouse the same height, part stone, part glass. Would such a plan be likely to answer? Would the heat from the boiling daily injure the plants? Would the heat from the copper, the flue round it, and the chimney against the partition wall, be sufficient to heat the greenhouse?"

Now, this is just such a case as may be found in many a well-managed farm, and the carrying out of which would be no slight boon to the female part of the household. In general cases, the best way to heat a house is to have the means of doing so separately; but then, in all such cases as these, the extra first expense would be an insuperable objection. One little difficulty there is, arising from our correspondent not having perfectly made up his mind, whether to have a greenhouse or a striking or propagating-house. Let us glance at the first. And first, the heat from the boiler and chimney will *not* be sufficient for such a house in severe weather, if an average temperature of 45° in winter is to be maintained. If the glass goes up to the point of the roof, there will be about eighty feet of radiating surface, less the wood the roof contains. With roof fixed, and accommodation for wood ventilators, there will still be sixty or seventy feet, and then, with three feet-and-a-half to four feet upright glass in front, there would be thirty or forty feet more. Now, the chief means of counteracting the radiation of heat from this, would be the heat of the chimney, but only one side of that would affect the partition wall, and that is four inches thick. The chief part of the heat would spend itself in heating the boiling-house; and though, by this means, the partition wall would be comfortable, it would not be hot enough to keep sharp frost out. But without resorting to steam or hot water, could nothing else be done? We think there could. Instead of having the boiler in the middle, it may be placed near one end, and then, instead of taking the flue right up into the chimney, it might pass through the partition wall, along the house, at the back or otherwise, and ascend in a chimney at the farther end. If, for such a house, a damper was placed in the chimney, it would be seldom indeed a fire would be required at night.

Then, again, without this flue, instead of the four-inch brick-work, an iron plate might be fixed in the partition wall, against the boiler, and in addition, a close chamber, from six to twelve inches wide, might be formed round the boiler and its flues, with two openings from that chamber into the house; one at the bottom for the cold air entering, and one at the top for the issue of the hot air. If it should be necessary to keep on a small fire at night, then by using a closish lid for the boiler, a damper for the chimney, a fair portion of heat would be forced through the upper opening.

But, secondly, would the heat from the chimney, and these means, injure the plants when the boiler was used all day? In the case of the chimney, it would *not*, if air was given above it. In the case of the flue, vessels of water could be set on it, and more air would be required; and in the case of the chambers, the holes could be stopped at pleasure, and when opened, the air, if deemed necessary, might pass over vessels of water.

Thirdly, would any of these means *beat* our proposed steam-pipe? I think not, but with steam so applied, I have had no great experience. But for choking them with the roots, I would have advised two small pipes for circulating hot-water, with cocks or plugs, to put on or off heat at pleasure. As it is, care must be taken that some careless boy does not clog your steam-pipe. It should be placed near the top of the boiler, with means of shutting it up at pleasure. I would take the pipe

through the partition wall, along the back, across the end, then along the front, and through the end wall, furnishing it there with a stop cock, to allow the condensed water to run away.

But, fourthly, if you did all this, I would not be satisfied unless you added two or three feet to the width of your house, for as it is, you must take up about the third of it in path room. But, perhaps, you cannot go farther south; well, by placing your upright front glass near the outside of your stone wall, you will gain the best part of a foot in width, making the space seven feet, instead of six. Then, instead of, as you propose, having the entrance to the boiler and the greenhouse close to the partition wall, place the door in the middle of the end of each respectively, and they will look as symmetrical in the one case as the other, while the advantage will be, you can open your greenhouse door opposite to a pathway near the middle. Then, further, supposing your front wall to be two-and-a-half feet in height, you might have a shelf there two feet in width; then, at three-and-a-half feet from the ground at the back, you might have a platform, or the lowest of three shelves, ten inches wide, or more shelves if you wished small plants. While, beneath this, there would be stowage room for many things in a dormant state in winter.

But for my limited space, I might enlarge on the appropriateness of such a structure for *propagating*—a small pipe from the boiler, conveying the steam at once into recesses formed by large stones, clinkers, &c., covered with smaller ones—and how, not only greenhouses, but hot-houses, might be heated, by such steam discharging itself into a close chamber, formed of heat-conducting material; but this would be expensive, and I must stop.

R. FISH.

LUCULIA CULTURE.

LUCULIA GRATISSIMA (The most-agreeable *Luculia*), is a native of Nepal. It is a branching shrub, with large laurel-like leaves, and terminal heads of very fragrant pinkish flowers, blooming in winter. Each flower is about half-an-inch across; the petals, four in number, flat, and spreading.

LUCULIA PINOIANA (Pince's *Luculia*) is like the former in all its parts, excepting the colour of the flowers, which are pure white. Plants of either cost 3s. 6d.

These two charming plants are great ornaments to the stove when in bloom; and the delicious fragrance of their blossoms deservedly render them great favourites with such cultivators as are successful in growing them to perfection. *L. Pinoiana*, though equally handsome, and quite as fragrant as the former, is rather more difficult to bloom. We have bloomed it at Pine-apple-place, but by no means so well or freely as *L. gratissima*. We possess a specimen of this species that, this winter, had more than twenty heads of bloom upon it. It is, however, in a warm conservatory, planted out in the border, that these plants show themselves off to the greatest advantage. There is a plant of *L. gratissima* planted out in the border of the conservatory in the Horticultural Gardens at Chiswick, that grows and blooms in great profusion, scenting the air of the whole house with its agreeable perfume. We cannot too strongly recommend this fine plant to the notice of such cultivators as may not possess it. If attention is paid to the following particulars of culture, these plants may be made to grow, and induced to bloom, as easy as any plants we know.

Soil.—These plants, being of a woody character, require a somewhat strong soil. We use a compost of good strong loam, one-half; leaf-mould, one-quarter; and turfy peat, one-quarter, with a small admixture of sand, just to keep it moderately open and porous. These, after a due preparation of turning over to de-

compose the vegetable parts, are well mixed together at the time of potting, but without sifting. The mixture is then placed in a situation to dry and warm, and when it is in order it is placed upon the bench.

Potting.—The best season for this operation is about the middle of March. The plants having been severely pruned-in about a month previously, are brought into the potting shed, turned out of their pots, the old drainage picked out from amongst the roots, and as much of the old soil removed as can be done without injuring them. In the meantime a fresh pot, two sizes larger, is prepared to receive the plant. If an old pot, it is well cleaned by a thorough washing; if a new one, by steeping it in water for awhile. The pot is then thoroughly drained, by first laying a large piece of broken pot over the hole at the bottom, then a few less pieces upon and around it, and lastly, about one inch for a medium plant, and two inches for a large one, of smaller-sized potsherds over them. We place some rough pieces of the compost, and as much soil upon that as will raise the ball nearly level with the rim of the pot; then we spread the loosened roots as much as possible amongst the new soil, and the soil is gradually worked among the roots till the pot is filled. After that, a gentle watering is given, just to settle the earth, and the plants are placed in the coolest part of the stove.

Cultivation in Pots.—It requires rather more heat than the greenhouse to cause it to grow strong. This is indispensable to bring out fine large heads of flowers. It will exist in a greenhouse, but never flourishes so well, at least, in pots. Planting it out in a conservatory is another affair. Many plants will do well planted out in a cooler house, that would thrive very indifferently in a pot in the same temperature; the plants in pots being placed in a moderately-heated house (50° to 55° in spring, and 60° to 65° in summer) flourish exceedingly well. As, for instance, the plant did here mentioned above, and managed as we have indicated.

Summer Treatment.—After the plants have made a considerable growth, they should be placed out-of-doors in a warm sheltered nook of the garden, and kept there till the end of August, giving them liberal supplies of water, and syringing them freely, to keep them clear of red spider.

Winter Treatment.—In September, bring the plants into a greenhouse, and keep them there till the end of October, then remove them into the stove, where they will soon show flower.

Propagation.—The only way to propagate these plants is by cuttings. The very youngest shoots are the best for this purpose, and a discrimination must be used; and even in them the strong leading shoots are too full of sap, and will damp off immediately, therefore the small weak side-shoots must be taken; cut them off with a sharp knife, and trim off the lower leaves, leaving the two small uppermost ones on. The cuttings must be small, not more than two joints below the leaves; put them in a duly-prepared cutting-pot, well drained, with soil upon the drainage to within an inch of the rim of the pot, that inch to be filled up with the purest white sand; give a gentle watering after the cuttings are put in, and place them under a hand-light upon a heated bed of sand or coal-ashes. Bell-glasses are too close for them; they soon damp off under them. Great care is requisite in watering, shading, and giving air in the mornings for an hour, to allow them to dry. We have struck hundreds here by this method carefully pursued. As soon as they are rooted, pot them off directly, place them under the hand-light again for a fortnight, and then gradually harden them off to bear the full sun and air.

T. APPELBY.

MR. GLENNY ON FLORISTS' FLOWERS.

AURICULA (Verax).—No dependence can be placed on Auricula blooms now, but the one sent is *Privateer*, though now unlike it. With respect to some of the Societies adopting the same flowers as we have among the novelties, the only instances we know of are those in which we gave an opinion first, and there is no Society hardy enough to dispute our opinion when favourable. With regard to the Pelargoniums, *Magnet* and *Chieftain*, we approved the former, and condemned the latter, on the same day. We did not know that the National had given the *Chieftain* a certificate.

ROSES (Andrew).—The two roses are *Fallenburg* and the *Crimson China*. It is the forcing that has spoiled the colour, or rather changed it, for, though paler, they are as pretty. The reason the others have pushed shoots without bloom is this, the change of temperature has been too sudden, or the plants had not been sufficiently rested, but the former is the most likely.

BUDDING ROSES (W.W.).—Wilkinson, of Ealing, recommended us dormant buds last year, and they turned out so well that we shall have them in future when we want new roses. They grew well, and bloomed strong, although in pots. W.W.'s other question shall be answered in an article on the subject of "The Notch in the Verbena."

CAMELLIAS.—S.M.'s flowers had in part fallen; neither of them, however, were seedlings. One is *Chandlerii*, in its blotched state, not uncommon. One *Halida*, a foreigner, but fine. The third, two flowers on the stem, is *The King*, which once came out at a large price, more than it was worth, though a pretty and distinct striped variety. The plant that has dropped all its buds, is in bad health. It has been too wet, or too dry, or has suffered a sudden change of temperature.

THE REV. J. H. seems astonished that the *National Floricultural Society*, up to a certain date, should have recommended more than a dozen Pelargoniums, and says we shall have more difficulty in choosing than ever, but the society, in fact, recommends no less than twenty-five; more, in fact, than all the dealers ever had the conscience to put forth in a season. We will give the names, *Advancer*, *Elise*, *Formosissimum*, *Ganymede*, *Optimum*, *Magnet*, *Mountain of Light*, *Ariadne*, *Arethusa*, *Caliban*, *Chieftain*, *Enchantress*, *Gypsy Queen*, *Miranda*, *Purple standard*, *Richard Cobden*, *Rubens*, *Attraction*, *Beauty of St. John's Wood*, *Fireball*, *First of May*, *Harold*, *Incomparable*, *Lady Emma*, and *Queen of the Fancies*, and by far the greater number belonged to judges, and members of the committee who appoint and pay the judges.

AMATEUR.—As well as we recollect, *Cornet* is a fancy flower, red and white; very showy; raised by Dr. Buschell, who, finding some of the trade run it down, perhaps with a view of buying the stock cheap, determined on sending it out at 2s. 6d. Had it got into the trade, it would have been 7s. 6d. at the least. We need hardly mention that, for those who want them to grow as a garden ornament, the fancy flowers are by far the most showy.

CHRYSANTHEMUM SEED.—H. H. H. must not hope to ripen many seeds of the Chrysanthemum, but when it is ripe it is plump and hard. We cannot, from the dried pod sent, flattened as it is, tell the plant it belongs to, perhaps the writer will send word what was the form and colour of the flower. Some *Campanulas* give a pod that, if flattened, would be like it; again, if the plants were very large, we can hardly call it a bedding sort, although it might be planted in borders. *Verbenas* may be occasionally preserved through the winter by covering them with litter, but they should be propagated by cuttings, and the old roots not cared for.

VERBENA CULTURE FOR EXHIBITING.

(Continued from page 274.)

PREPARING PLANTS FOR EXHIBITION.

In our last paper we endeavoured to show how cut flowers should be got ready for carrying to, and putting upon the tables at the place of exhibition. It is now our intention to treat upon preparing and conveying plants in pots to the same place, the exhibition-room or tent. The grand business on which success principally depends, is having the plants neatly trained, and in full bloom on the day. To attain this object, a considerable amount of daily care is quite necessary. There must be no lagging or neglect. The plants should be potted, and that at the right time, and in the proper sized pots. Some societies restrict the grower to certain sized pots, both for the sake of uniformity, and to give all the exhibitors an equal chance. And if the society or committee have amongst them persons of experience, who are capable of giving advice as to the proper size of pots Verbenas ought to be exhibited in, so as to show them off to the best advantage, the regulation will be very proper and wise. But then the society should let this regulation or rule be made public, in such a way that every exhibitor should be aware of its existence as soon as possible. At least three months' notice should be given of the size of pots required. Where there is no notice given, of course the matter of size of pots must be left to the discretion of the growers. If there is a rule to the effect of limiting of size of the pots, let the plants be placed in them at least two months before the day of exhibition. Then the training, as we have described it, must be constantly attended to, whatever method is adopted. It is a good plan to set one day apart for this business, in each week, and having set that day, to regularly keep it for the purpose, weather permitting. By doing so, the work will be sure to be well done; every shoot will be kept in its place, and by being attended to so often, there will be less difficulty in bringing each shoot into the desired position.

Watering.—The health of the plants, and consequently strength to produce fine blooms, depends greatly upon the due application of water. In the early part of the season, whilst there is the least appearance of cold nights, the water should be given in the morning, but when the days lengthen, and the power of the sun increases, and the growth of the plants is progressing rapidly, it is evident that the plants will require more water. It is then advisable to give water in the afternoon, to allow a longer time during the night for the plants to take up food, to enable them to become refreshed, and able to withstand the greater amount of evaporation during the longer and warmer day. The quantity of water to be given at any one time, depends upon the state of the soil in the pots, and the size and strength of the plants. It is impossible to give the precise quantity, or the times when to water. This must be left to the judgment of the cultivator. It is easy to say, water a plant when it wants it, but how shall the young and inexperienced grower know this. One rule is pretty certain, and that is, when the plant is healthy, and shows the least inclination to droop its foliage, then it requires water. Some say, water when the surface is dry, this will do, if the same person has constantly watered them, and knows by experience the state of the soil underneath the surface. Whoever waters plants—and this applies to all plants as well as Verbenas—must ask himself three questions. Does this plant require water? If the reply be yes—then, how much shall I give it? As much as will thoroughly wet the soil in pot right to the centre of the ball. When will it require it again? As soon as the plant having taken up the last supply, begins to droop ever so little, and the soil shows signs of dryness. Or, if the plant

be rather sickly, I must give it a smaller quantity till it recovers its health.

The watering, training, &c., having been rightly attended to, the next preparation is *selecting the trusses of bloom*. These should be borne upon the strongest shoots, and every one as nearly equal in size, number of pips, and in the proper position, as possible. Should there be in any case more pipe to a truss than can possibly expand, let them be carefully thinned out with a pair of sharp-pointed scissors. This should be done at an early stage, to throw more strength into those intended to bloom. This point of thinning is of more importance than many think of:—they are afraid, or too careless to do it.

Giving Air.—No flowers will thrive well, and bring their colours to high perfection, without abundant supplies of element, therefore give plenty on all favourable occasions. On mild, cloudy days, it will be advisable to draw off the lights of the frame or the pit entirely, and let the plants revel in the mild atmosphere.

All these points having been duly attended to, we may fairly suppose the blooms will be in fine order the day before the exhibition. It will then be necessary to consider *how they are to travel*. Happy is the man who happens to have his garden near the place, and can convey his plants on a covered handbarrow, and place them upon the stage, uninjured, at once, an hour or two before the judges enter to decide upon their merits. He is relieved of a world of care. But he who dwells at a distance, need not despair, if his flowers are up to the mark of excellence. He will certainly have to bestow a little more trouble in tying his flowers close and firmly to sticks, encircling the stems with a little cotton wool, to preserve them from being injured. Then place the plants in a spring van, first covering the bottom with a few inches of coal-ashes or sand. This will keep the pots from sliding about, and causing the branches of the plants to rub against each other. Having arrived safely at the place, the plants must be carefully lifted out, the sticks removed, and also the cotton wool and every other unnecessary appendage, used as protectives during the journey. Then dress over the flowers, clip off any that have been injured, and bring others into view in their place. If a little green moss be laid over the soil, it will both look neat and tidy, and keep the soil moist in the pots. They are now fairly before the judges, and may be left to their arbitration with the consoling thought, that whether they win, or no, everything has been done to the best of your judgment.

T. APPLEBY.

ROTATION OF CROPS.

THIS significant term, in its more extended sense, involves a very important part in the covenant between "landlord and tenant," as regulating that due variation of crops, whereby the land may not be deteriorated in value to the one—nor the other denied that proper amount of produce due to his industry: this important subject which in that case has engaged the attention of the most eminent agriculturists of the day, and not unfrequently given rise to vexatious disputes and litigation, is also of the greatest consequence to the horticulturist, whose operations, though less extensive than those of the other great section of "cultivators of the soil," is yet one demanding our most serious attention; and the spring crops being shortly to be committed to the earth, we make a few remarks in the way of assisting the inexperienced in the course most prudent to pursue.

We believe the writers of most works on cultural affairs agree, that a crop ripening its seeds is the one most deteriorating to the ground producing it; and, acting on that principle, many landlords forbid two corn crops

in succession, unless the second one receive that generous assistance which is supposed to support it, without calling forth more than the energies of the land can properly spare. Now, though this can hardly be met by any analogous case in ordinary gardening, yet from it we may draw a useful lesson, for here we see it hinted, that two crops alike, impoverish the land to a much greater amount than two crops of different kinds, other things being equal in both cases. Now, though we do not scruple, now and then, at taking a leaf out of the farmer's book, we are far from certain whether in this case, it is he, or the gardener, that has copied the other's practice. But, leaving that question, let us direct ourselves to the result it has on the well-being of the crops influenced by it, and though we do not pretend to name the various salts, alkalies, &c., which learned men tell us a crop of cabbages withdraws from the earth, neither would the uncouth titles such substances are known by tend much to enlighten the paths of ordinary cultivation, yet it requires no great amount of chemical lore, to prove that two crops must abstract a much greater amount of such substances than one. This axiom we may lay down as a "fixed law," and as such let us now consider its bearings, beginning first with that important section the Cabbage-works, or *Brassica* tribe, which, as our readers well know, includes a large portion of the kitchen-garden produce; and commencing with *Cabbages*, let us see how that crop fares. It is common to plant the principal supply in the autumn or early spring, and perhaps a few, from spring-sown plants, are planted out early in summer; these crops, after being cut, are generally allowed to grow or sprout again, and a crop of sprouts, varying in size from medium-sized hard cabbages, to small shoots of only a few green leaves, are usually produced in such abundance as to carry on the supply until the middle of winter, or early spring of the year following. This successional, and often useful crop, is sometimes dispensed with, when the means and wishes of the proprietor enable him to keep up a succession of cabbages from young plants, which we have sometimes done; but as we never could see any particular benefit in the plan, commensurate with the extra expense, &c., we have abandoned it in cases where not particularly wanted, and regard the duties of the *Cabbage* as only half performed when it has yielded us the first "firm head;" and the crop of sprouts which follow, form dishes of "greens" for common use all through the latter part of summer, autumn, and early winter, and being young and tender, form no bad accompaniment to other good things.

While treating on this subject, we may give the inexperienced a hint worth noting down, and it is this:—in cutting the first crop of cabbages, be sure not to cut any more leaves off than are wanted with the cabbage; inattention to this simple matter will deprive you of the use of more than half the second crop. We have often been grieved to see the cottager strip his cabbage stalks of, what we may call, "their very heart's blood;" the term, doubtless, is not a polite one, but it is not far from the truth, and we have witnessed it literally become so; and in a plant less tenacious of life than the cabbage it would oftener prove so.

However, as this is a digression, we must return to our text, and consider ourselves as looking over a plot of cabbages, or rather what once was such; a momentary glance will tell us that, in catering for the kitchen, the demand had been greater than the supply, or, what is nearer the mark, the thoughtful "kitchen server" had kept cutting from them, saving greens in another place for future use; all, therefore, that we have before us is a mass of naked stalks, forked and branched like miniature fruit-trees headed down for grafting; this crop we shall suppose to have performed its duty, and a verdict for its removal is given accordingly, and the sooner the

better, that the ground may have the more time to sweeten, or prepare for future crops.

Now, we all know the cabbage tribe are gross feeders, i. e., they live or thrive on those juices which dung and other enriching things supply, and, consequently, after their removal, we may infer that the ground ought to have those substances returned which it had parted with in supporting the late crop. Now, this is the subject our agricultural, or, I ought to say, horticultural chemists have been aiming at for a long time, which is, returning to the ground those elementary substances only, which they tell us the crop "only" abstracted from it. Hitherto their experience has not confirmed them to be right in all cases; and that concentrated form, in which they tell us manure may be used, has, in many instances where tried, proved the crop to be concentrated also, therefore we advise our gardening friends who are anxious for their crops to excel, to treat them liberally with enriching substances of a bulky nature, rather than one said to be the essence of what is wanted. In this respect we do not include tank-water, which, if given strong, is diluted by the elements. But we certainly have more faith in a good dunging than in that niggardly dusting or dredging which the high price of nitrate of soda, saltpetre, or guano, compel us to be satisfied with when they are used, that I would strongly advise the enthusiastic experimentalist to try the merits of the latter on a small scale, until he is satisfied of its efficiency, and in such crops as he is most anxious to prosper, good farm-yard manure is seldom used in vain. Therefore, we presume the cabbage stalks to be condemned, and the ground not having been trenched for some years, we will advise its being done now, in the manner we explained some weeks ago, burying the stalks and any other waste in the bottom, the dung in the middle, and returning the top soil to the top again. This plan we suppose to be followed out, our next duty is to consider, or rather that should have been done long ago, what crop ought next to follow.

Cabbages we suppose to require nutriment of the same kinds as broccoli, cauliflowers, and the other members of this family; they ought not, therefore, to be followed by any such crops, and the one that first points itself out to our use is *Potatoes*; *Carrots* we strongly object to, the slugs that usually harbour in the ground where cabbages have been grown are generally too numerous and difficult to eradicate to leave much chance of obtaining a crop of that delicate-topped young vegetable; besides, the wire-worm and other casualties have induced us to prefer a piece of ground for carrots that has lain all winter exposed to the action of the elements, one or two turnings in frosty weather being also given, and the previous crop may have been *Scarlet Runners*, or some such crop.

Now, there are so many things which mar that arrangement of rotation, which, in theory, we think the most beautiful, that we are often compelled to relinquish plans in themselves good; nevertheless, there are some which ought not to be departed from. *Celery*, which is rather an extensive crop, is usually favoured with the best ground or situation; and in planting the crop the previous season, regard may be had so as that a portion of it may be got off the ground intended for *Onions* some little time before this crop is to be sown. In fact, all celery but the very latest, may be grown in ground intended for onions the following year, observing, as the celery is removed, to dig or trench the ground, and add what dung you do apply in as rotten a state as possible; that green or fresh condition, which enhances its value for some crops, is not suitable for this, but we will explain the reason more fully hereafter.

Peas, which occupy a considerable section of the garden, might follow something in the cabbage way, were it not that we strongly advise *Brocoli*, of the late

kinds to be planted amongst them, which, for that reason, we sow in drills wide apart,—but more of this anon; suffice it to say, that where the peas may have followed such a crop as *Winter Spinach*, broccoli, Brussels sprouts, &c., may be advantageously planted between.

Now, on the other hand, the early period at which the *Onion* crop is gathered off, enables that space to be occupied by *Winter Spinach*, or, it may be, the first crop of *Spring Cabbages*, planted in September; while *Parsnips*, *Leeks*, and sometimes *Beet*, remaining in the ground all winter, afford a fair place for *Peas* and *Brocoli*, or, it may be, *Broad Beans*.

The last crop of *Brocoli*, which ought to carry on the supply up to the time the first cauliflowers are fit for use, will be off in time to sow the second and after-crops of *French Beans*. *Lettuce*, and other small crops, we suppose to be grown on borders, where the rotation may be varied by *Early Potatoes*. Beds of seedlings, as sweet herbs, the cabbage tribe, &c., and other minor crops, may also be placed in such situations.

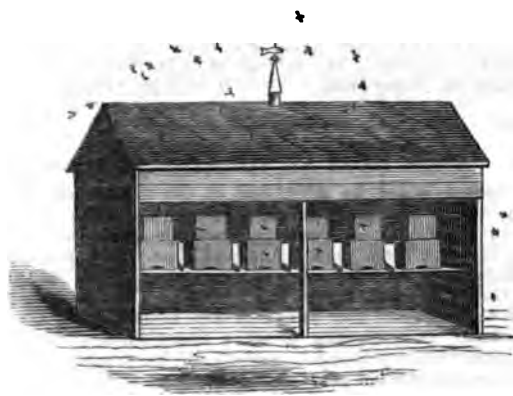
Now, though we can hardly expect the above rotation can be fully carried out, yet, by judicious management, much may be done; and our purpose in pointing out such changes as might be beneficially adopted, may, in a general way, be accomplished without any loss or sacrifice. It is hardly necessary to observe, that the market gardener (than whom no one produces better crops) often plants the very same thing on his ground year after year; but then he pays for such hard usage in the liberal amount of manure he treats his ground with after every crop. But the demands for that commodity in rural districts limit the quantity to the garden to a less amount than it might be desired at times, so that all means to husband that useful article must be adopted. In closing this paper on the Rotation of Crops, we beg to say that we are opposed to that class of cultivators who advocate mixing them, as, with the exception of peas, which, getting off before late in the summer, leave time for the broccoli to grow, and a few rows of cauliflowers, &c., between our beds of asparagus, we grow all our other garden crops separate, and we never could see the utility of trampling down one crop in the gathering or planting of another, so that we abandoned the practice after some little experience that way.

KITCHEN-GARDEN SUNDRIES.—*Garlic* and *Shallots* must now be planted, and the same may be said of the *Potato Onion*. In dry weather, stir the ground amongst *Cabbages*. Give air in abundance to young *Radishes*, &c., in frames, and sow some under south walls. Attend to forcing, especially to *Cucumbers*, *Melons*, &c.; and all alteration in permanent crops, as *Artichokes*, *Rhubarb*, *Asparagus*, &c., may now be done, and new plantations made when necessary. J. ROSSOX.

WINTERING BEES.

Will your readers be surprised if I draw their attention, once more, to the subject of *wintering bees*, a once favourite subject of mine, although it has gained for me but little credit, I fear? I will confess, that since the discovery of the new system of cottage bee-keeping, published of late in your pages, I have become much less solicitous about my bees in winter, as I cannot foresee the possibility (my outdoor apiary being now entirely managed on that principle) of any hive of mine being so short of provisions in any winter, even the most trying, as to make me fear for it on that score. Formerly, until it crossed my mind how advantageous in every way it would be to keep *old stocks*, instead of *prime swarms*, for breeding purposes, from year to year, I was often wishful to preserve such *casts* as I saw (from their populous condition in the autumn) evidently contained promising queens, these being young queens to boot; but I well knew, and by experience found, how difficult it was to

keep these casts through any winter, unless their stores were far less slender than they usually are; in fact, how generally impossible without *copious feeding*—a too troublesome business to be often resorted to. Hence, among other reasons, arose my anxiety to discover some method of diminishing the consumption of food in winter, so as to enable ordinary casts to survive the casualties of that season. As, however, I have now no inducement to keep casts (of which the very name should, henceforth, be banished from apian literature), my solicitude about my hives, on the score of their maintenance during winter, is, I repeat, much diminished; still, the wintering of bees, with a view to the discovery of the *minimum quantity* of honey necessary to maintain a hive in good health and strength, remains a subject of interest, as tending to increase very considerably the bee-master's ultimate profit from his bees. Now I am happy to be able to draw the attention of your readers to a novel kind of bee-house, of which the construction is such as to afford, by a very simple contrivance, the most effectual means of wintering hives at the least possible expense, and with the least possible trouble. I am indebted to your correspondent, R., for the suggestion, which will be found at page 219 of Miner's work on bees—a work which, although “dogmatic” indeed (and, I may add, abounding in extravagant Americanisms, and republican conceit, of both style and matter), is yet, certainly, a “useful sort of book” in its way. The American bee-house, illustrated in that book, and I presume, of the author's invention, appears to me to be the *ne plus ultra* of bee-houses; indeed, so delighted am I with it, that I have, within the last week, had one constructed on the same principle to stand in my garden. It is not only admirable because of the facility it offers for the perfect wintering of hives, but it may be so placed as to enjoy the full benefit of the sunniest aspect (say S. or S.E.) without the hives being exposed to the actual rays of the sun during the heat of summer, at the same time that they may experience its direct warmth as often as is necessary or advantageous to assist in maturing the brood. To waste no more words, however, in its praise, let us proceed to examine the house itself as seen in the accompanying sketch. Mr. Miner describes it in the following words:—“The cut (he says) represents a house 12 feet long, 6 feet



high, and 5 feet wide. The ends and back are enclosed, except a space one foot wide (at the back) directly opposite the lower section of the hives. The space is provided with a shutter, hung on hinges, and during the months of March, April, and May (the breeding season), it should be closed. The remainder of the year it should be open, unless in certain circumstances of very heavy winds existing, when it would be proper to close it again for brief periods. The shutter here alluded to is made from any board, measuring twelve feet long by one foot wide, and bracketed to prevent warping. During the heat of summer, a breeze will constantly be playing around the hives, when arranged on this plan, giving the bees health and activity, and during the winter they will stay at home (this breeze acting as a refrigerator) where they belong. It may be perceived in the cut that a portion of the structure is closed below the roof in front. This portion of the front thus covered is about two feet wide. It is not intended to be permanently fast,

but one foot of it, at least, in width should swing on hinges, and be susceptible of being raised and lowered at pleasure. In the spring of the year it may be raised, and the sun let in, as the heat of this orb, at that period, is beneficial in aiding the bees to raise the temperature of the interior of the hive sufficiently to develop the brood. A very good way to bring the hives within the reach of the sun during the spring months is so to construct the floor-board as to admit of its being brought forward, or moved back, at pleasure. For instance, in March, April, and May, bring it forward parallel with the front of the house, when the sun will shine with full force upon the hives. When swarming is over (better to say when the swarming season approaches), and the heat becomes oppressive, let it be moved back so far as to be beyond the reach of the rays of the sun; and in the winter, the further back it is moved the better, for the reason that no inducement should be afforded to cause the bees to leave their homes, and at this season the front should be closed partially; that is, the board that hangs on hinges should be let down. The rear being open in winter causes a cool current of air to pass around the hives, which, of course, will check the bees from issuing forth, as they might otherwise do; whence, remaining still and quiet for whole weeks together in shade and cold, the consumption of honey may be expected, with reason, to diminish greatly. He adds, “the removal of the floor-boards from front to rear, and *vice versa*, will not involve the necessity of disturbing the hives. It can be effected by shoving along the whole together.”

I think the dimensions of the above house involve an unnecessary waste of room. It appears to me that by a slight elevation (say of half-a-foot only), with not much more than half the length of structure, and a reduction of the width to three or four feet, the same number of hives could be accommodated in *two tiers or ranges*, one above the other, with the same advantage. There should be a space of two feet-and-a-half between each tier, and between the upper shelf and the roof, to allow for the comfortable working of *supers* or glasses. Also, it would make no difference whether hives of straw or wooden boxes were made use of; only in the latter case the thickness of the wood should not be less than an inch, and the boxes might be covered up with matting, or sackcloth, in very severe weather. It is evident, too, that either storified or collateral colonies might be used with all the modern improvements of floor-boards, &c. In the spring and autumn the hives would be *gradually* pushed forwards or backwards, so that the bees might easily learn their way in and out without difficulty. To my mind, nothing can surpass this sort of bee-house, be it constructed of brick or wood. Here I can well imagine every advantage to accrue, of which your correspondent, R., makes mention, viz., “the sunshine (when injurious, for it is sometimes beneficial), is warded off, a moderate consumption of food takes place in winter, internal heat and, consequently, early breeding, is promoted, and by means of the overhanging eaves and swinging boards, “some-what of the effect of shady walls and shrubberies is produced in summer.” From the opening observations of this paper it will be understood that I have great pleasure in trusting to what Mr. Miner says at page 222, viz., that the bees “will not consume over one-half as much honey in this way as they would if exposed to the full force of the sun during the winter;” but, indeed, this bee-house appears to me to meet all the *desiderata* in bee-houses, without any of their inconveniences. The cost of such a structure ought not, I should think, to exceed £4 (which is the cost of my own, just erected), a sum moderate enough as a shelter for six stocks, and it might be made to accommodate eight colonies, if all storified, their entrances being distant a foot-and-a-half from each other. A COUNTRY CURATE.

MANAGEMENT OF GEESE.

(Continued from page 247.)

AFTER enjoying a few sunny days, the goslings will soon become hardier, and may be sent to the common, or fields, as soon as the sun has been an hour risen; for they are proverbial as early risers, and will express their impatience to

be let out in no very pleasant language to the sluggard who delights in a late morning's nap. Nearly every school-boy knows that it was their gabbling which gave the alarm to the Romans, and thereby saved Rome from being captured by the Gauls; and geese were long after that venerated by that superstitious people. Still, care should be taken not to expose them, even at a week old, to too much rain, though a brisk shower would not injure them, as, in such, they will creep under their mothers; but if a continuous rain, the mothers will not settle long in a place, consequently the young ones are then liable to get soaked with the wet, and, as I said before, this has a dangerous effect on them; therefore, when such is the case, which often happens at this unsettled season of the year (the beginning of April), I would advise to keep them under cover in an empty out-house during a heavy rain, and feed them with thick oatmeal mash, mixed with small-chopped, curled greens, or any of the sorts of kale which every cottager ought to have in his garden at that time; this they relish much, and will thrive well on, and even if the weather be propitious they ought to have a meal of this every morning and evening, and at three weeks old a few dry oats may be thrown among them, which they will soon learn to eat, and thrive on amazingly.

After learning to eat oats, the mashers may be discontinued. There is another sort of grain which was a few years ago much used by the cottagers in this vicinity in feeding their geese and goslings at this stage, called "Swimmings;" that is, the light refuse barley which swims at the top on being steeped by the maltsters. These were used when oats were so high in price that the cottagers could not afford to purchase them, and the swimmings were then considered as a good substitute for oats, though, of course, they had not the feeding qualities in them which oats had; but now the latter are as cheap as swimmings, and are generally preferred for that purpose in this neighbourhood.

By the way, when great numbers of geese are kept on a common, there must be different marks put on them, to distinguish the respective flocks from one another, as they are very apt to get mixed when young. Each cottager, therefore, ought, and is obliged, to have different marks, which is usually made on the feet—such as "heeling," "toeing," "holeing," "tongueing," and "slitting," the webs or feet. As all these processes cannot be done without some pain, and also cannot be dispensed with where many are kept, and liable to get intermixed when young, therefore the sooner this is done the better, as the younger the goslings are, the less they will feel the pain. Care must be taken that the marking is done in the evening, when they can be put under their mothers after the operation is performed, and the bleeding, if any, will soon cease, by their being kept from moving. The marking ought not to be delayed later than the second day after they leave the shell, for the reason mentioned above. The heeling and toeing is done by cutting, with a sharp pair of scissors, one or more of these members off close by the nail, according to the fancy or different mark of the owners; and every owner ought to retain his own mark from year to year, which practice is strictly adhered to here, where there are, I should think, not less than two hundred different flocks of geese kept on the common, and I dare say not two flocks marked alike. Even in the highlands and islands of Scotland this practice is carried on to the present day with the sheep and black cattle, the only difference being that they are marked in the ear instead of the feet. The dissimilarity of marks required for such a number of flocks of geese require that heeling, slitting, and tongueing, must also be resorted to; the former is done by running a round piece of red-hot iron, about a quarter-of-an-inch in diameter, through one or more of the webs of either or both feet; the slitting is done by cutting right up the middle of the web, or webs; and the tongueing, by cutting the outside of the web, and making it appear something similar to the teeth of a large saw. Besides being thus marked on the feet, they are usually, when first put on a common, marked with varied and mixed coloured worsted, run through the skin of the neck with a needle, and knotted, leaving about an inch of the worsted to hang down. This is called "cockading" them, and is indispensable when put first on a common, as they are not only easily distinguished by their owners at a

distance—for the marks in the feet when young are difficult to discern when they get intermixed together—but even the old ones are endowed with that powerful instinct to pick out one who has intruded himself upon them, and will instantly peck and ill-use him if he has a strange-coloured cockade hanging on him.—LEEBIG.

(To be continued.)

ANOMALIES OF POTATO-GROWING.

I now write to say what it was that puzzled me so much in 1845. Having something like two acres of potatoes planted in a ten-acre field, and having five sorts, I planted six rows of each sort, two feet apart from row to row. No. 1, Ash-leaved. No. 2, Early Shaws, which, being early, were a very good crop and sound. No. 3, Jersey Blues; not one bushel of sound ones, but a very heavy crop. No. 4, what we call here Stone Kidneys, were all sound, and sold to a neighbour for £7 1s. No. 5, York Pink Eyes; not one bushel of sound ones, but a very heavy crop. Now, I ask, how comes it to pass that the Stone Kidneys, though between the others that were all diseased, should be all sound?

I have read much concerning the potato disease, and not any two writers fully agree as to where the disease first makes its attack. It may be said by some, on the bine most certainly, and I know that there it first makes its appearance; but is not that the effect of a cause? I am inclined to believe it is, and that the disease comes first in the tubers. The question still remains—What is the best preventive? Early planting is one, and by no means the least, seeing the disease does not ordinarily make its appearance until somewhere towards the middle of July, and by that time early planted potatoes have done growing. I wish I could prevail on one of my cottage-garden neighbours to plant early, or under ashes,—but that deep-rooted thing, Custom, seems insurmountable. I was speaking to one the other day on early planting, and the answer was—"Bless you, I know it will not do."

There is a *Variegated Senecio*, with light purple flowers, and double. I have not seen it for some years. I cannot think how it escaped Mr. Beaton, as most assuredly it would make a very pretty edging or small bed, not being a very rampant grower. If any one knows anything about it, I should like to know where it is to be got. It strikes as freely as any, but is bad to keep through the winter, particularly the young plants. A THINKING GARDENER.

EGGS LAID AT POULTRY SHOWS.

PEOPLE would be astonished at the number of these, especially when the Exhibition is one that happens to be open for several days, and the fowls, therefore, have to be on the spot some time before and after. It is not to be wondered at, when we remember that most of the birds are in the best possible health and condition. The poor things are sadly puzzled what to do with their inconveniently-timed produce. It is amusing to see a Bantam hen, after a few moments of deep thought, carefully roll her possible chicken up one corner of her pen. But Committees will soon have to relieve the perplexity of the exhibited, by coming to some decision on the matter. A correspondent writes, "If birds are sold at from £5 to £10 each, do not you think that attention will have to be paid to the eggs they lay on their visits to these shows, and that exhibitors of the really good varieties will be found insisting on the admission of their servants, or that some other means be adopted to secure them? I mooted this point to the authorities at Halifax, and they promised to attend to it." D.

PROTECTION OF GOOSEBERRY AND CURRANT-TREE BUDS.

On visiting Mr. Rivers' nursery-grounds early this year, he called my attention to the mode he pursued for protecting his gooseberry and currant-tree buds from injury by small birds in spring. It is, in my humble opinion, worthy of

record for the benefit of all amateur and operative gardeners; and if you like its insertion, here the simple remedy is:—The operation of pruning being completed, as it may be now in this fine, open season, Mr. Rivers scatters thickly over the bushes what, in Norfolk, we call "short muck," or "short litter from a dunghill," and leaves it there till spring begins to develop the young leaf from the bud. This, he tells me, perfectly secures his trees from all the injury usually occasioned by the onslaught of the little chirpers, which, for those who admire and cultivate good and useful summer fruit, is a consummation devoutly to be wished.—W. MASON, *Necton, Norfolk*.

GUTTA PERCHA TRELLIS.

THE following hint may be useful to some of your readers who have greenhouses (of course, it can only be applicable to those who study economy, and, perhaps, even to them, it may be nothing new), but I have not seen it, except in my own,—I allude to the use of gutta percha, instead of wire, for training plants along the top and sides of the house. I found very great difficulty in applying wire, as it requires a very experienced hand to run it straight, and stretch it tightly. A friend of mine happening to come in and see me vainly endeavouring to stretch my wire so as to appear "eyeable," suggested gutta percha, which I tried, and have had it in use all through last summer. I think it will answer quite as well as wire. It has never "given" under the highest temperature. F. G.

SUCCESSFUL MODE OF POTATO PLANTING.

My potato experiments are not yet complete, nor should I feel justified in recommending a system after one year's trial, however successful. When I think I have established results that may be generally useful, I will, with pleasure, report them in THE COTTAGE GARDENER, or, which would perhaps be better, send you the facts to be put into readable form, for which my professional engagements leave me little leisure.

It is possible that my plan may have been tried. The object is to save seed, and give more light and air to the plants. I plant on ridges, three feet wide, one row down the centre, choosing the finest potatoes, and placing them thirty inches apart. I flat-hoe early, and when the stalks are nine or ten inches long, they are spread from the centre, forming a circle, and the earth is pulled by hand over the middle of the plant; this process is repeated whenever the earth cracks.

I succeeded this last year in my garden in producing from a ridge 15 feet by 3 feet, 72½ lbs. of potatoes, from six planted whole in March last. The several weights were 15 lbs., 15 lbs., 12 lbs., 11½ lbs., 9½ lbs., 9 lbs. Each potato a different sort. Of the first, the *Old Guernsey*, six tubers weighed more than 6 lbs, and of the second, a pink kidney, there were not more than forty potatoes to make up the 15 lbs. All the potatoes were particularly fine.

H. B., *South Petherton*.

[We look forward with much interest to the results of this year which may arise from our correspondent's mode of potato culture; and we recommend it at once to be tried by all our readers on a small scale. The importance of obtaining from 9 lbs. to 15 lbs. of large potatoes from one root, needs no argument to enforce it.—ED. C. G.]

TO CORRESPONDENTS.

*. We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of The Cottage Gardener, 2, Amen Corner, Paternoster Row, London."

ERRATA.—All through the essay at page 286, the name of the plant should be spelt *Arctocalyx*, and *arctos*, a bear.

CALABASH (*R. O.*).—Most certainly the Calabash will not succeed out-of-doors in the North of England. It is a stove shrub. But we suspect you mean the *Squash*, which will do there, it being, in fact, only a variety of the Gourd or Pumpkin, but differing in the manner of growth, and, except for novelty, but little grown.

VEGETABLE MARROW SEED (*Ibid*).—You may with perfect safety depend on the seeds of last year being fertile this. The opinion that Melon and Cucumber seeds ought to be old to be prolific, is fast wearing away, and though gardeners prefer seeds of these fruits three or four years old, they never hesitate to sow that of the last year, when they wish to have the kind. As a proof of the fallacy of old seed being necessary, we have seen a very nice crop of Melons late in the summer, which were the produce from seed saved that same season, and, consequently, could only be a week or two old when sown.

CASSABA MELON (*Ibid*).—This is one of the tender Persian varieties, which require a brighter sun than we often have in England, and unless under advantageous circumstances, seldom do well. A soil too wet, and an atmosphere too moist, is most likely the cause of your failure. If you try again, withhold water for some time previously to their showing fruit, except for the purpose of keeping the foliage healthy, and then, if you keep the vine thin, and stop the points, you will probably succeed. Persian Melons that have been grown in England, and have become, to a certain extent, naturalised, are more fruitful than newly imported seed. An article on Melons will shortly appear in our pages.

FORCING FUCHSIAS (*An Amateur*).—The latter end of April, or beginning of May, is far too early to bloom Fuchsias in good condition. If you wish to try, you may do so, but you should have a forcing-house to bring them on rapidly, and you must lose no time in commencing them. Repot, and place in a heat of 50° at first, and as soon as the plants have made some fresh leaves and shoots, increase the heat to 55°. It is not advisable, however, to try too many, for your success is very doubtful. The end of June, or beginning of July, is the proper season to flower this plant in perfection.

DAHLIAS (*Ibid*).—If you do not wish to increase your stock of Dahlias, pot the old roots in March, and grow them on slowly in your greenhouse till it is time to place them out in the open air, under shelter of hoops and mats in frosty nights; and when the season is advanced so far, that there is no danger of frosts occurring, plant them out immediately where they are to flower. If you wish to increase them, but not largely, you may divide the roots, leaving an eye to each tuber, pot them, and treat them like the entire plant. Then, again, if you desire to increase any particular kinds that do not show many buds, cut off the cuttings as they spring up, put them in small pots singly, and place the cuttings in heat to root. Afterwards repot and harden them to bear the full air and light. The best time to start Dahlias for cuttings, is early in March.

SHIFTING GLOXINIAS AND ACHIMENES (*G. H.*).—You had better shake them out of the old soil, and pot them in fresh before starting. See back numbers of THE COTTAGE GARDENER.

FLOWER OF THE DAY (*J. H. N.*).—The novelty of this beautiful variegated Geranium will plead in excuse for making an edging of it round a bed of fancy Geraniums, for a year or two, but the colour, though not a bright scarlet, is too much so for such a bed as you propose. It makes a very beautiful bed by itself. Your question about *Roses* for four beds, is too indefinite to enable us to answer it. What class of *Roses* do you wish to plant—*Noisettes*, *Chinas*, *Bourbons*, *Tees*, *Hybrid Perpetuals*, or what? If you cannot select from late numbers, let us hear from you again.

FLOWERING EVERGREENS (*Queen Mab*).—As a general rule, evergreens may be considered, with a very few exceptions, as not flowering at all. The new *Ceanothuses* from California, which are not yet quite proved, are the only addition we can suggest to what you already possess.

CUTTINGS OF SCARLET GERANIUMS (*H. L. D.*).—It is too soon yet to make cuttings of Scarlet Geraniums to be rooted in a greenhouse. The middle of March will be time enough for you; but those who have hot-beds or pits are putting them in now by the thousand, being the thinning of old plants kept growing slowly all winter.

BOWING ANEMONES (*Ignotus*).—Sow the seeds about the end of February, in boxes, if you have the convenience to shelter them, and if not, sow in the open ground early in April. This is on the supposition that you mean common border sorts.

STANDARD ROSES (*D. H.*).—You complain of the stiffness and naked stems of tall Standard Roses, and wish to know if they can be improved by planting others with them, "and let them grow so as to look like bushes with different coloured roses, one above the other." A very good idea, which may be easily carried out in good soil, and there would be no harm if some of the low ones—say *Gloire de Rosemane*—should mix with the heads of the standards; one of *Gloire de Rosemane*, planted quite close to the standard, then three of *Madame Laffay*, a little from the stem, and five of *Dr. Marx*, or any of the medium growers on the outside, would make a very pretty group, and the colours might be varied by budding on the shoots in addition.

COW-KEEPING (*Ibid*).—If you sold your cows—that is, cut the feed for them, and gave it to them in a yard, one-and-a-half acre of moderately fertile land will keep a cow all the year round, and much less ground will do the same under very assiduous management. If you have only grass land, one acre-and-a-half, a ton of hay in summer, and one ton of hay in winter, besides carrots and cabbages, is an average proportion. Why not break up some of the grass to grow winter feed. See what Mr. Milburn says on the subject in his shilling volume on *The Cow*, published as one of "Richardson's Rural Handbooks."

BAREEN WALNUT TREE (*A Constant Subscriber, Hereford*).—As your Walnut blooms and sets freely, and casts the fruit about Midsummer, it is to be presumed that drought and a hungry soil are the causes of the evil. If your soil is dry, cover the surface, over the roots, with some old compost, pond mud, or ditchings, which have been mellowed; you may

t inches, and over the whole space between the trunk and eight

LS STOCKS (S.).—These appear to be a very coarse-wooded wilding. We believe our nurserymen bud Nectarines and the Muscle stock, another wilding Plum, and Apricots on the hat is called a "commoner" stock.

We will see what can be done for you shortly as to Orchard-

K AND KITCHEN-GARDEN (A Constant Subscriber).—You e stated the depth and character of both soil and subsoil of ck land. It is really a pity that all querists will not give the sary; half a dozen lines distinctly given would generally com- igest case. If your paddock land is a free loam and deep, a ing will suffice for getting a nice tilth for the seeds. If stubborn w soil, it would be advisable to apply old manure, harrowing it ee before rolling the seeds. A dressing of Peruvian guano, plenty of ashes and some soot, would answer well. In the e, you will have to dress the grass roots when established. ere would have a crop of oats or barley with the seeds. As to en-garden, be sure you form platforms for your trees, marking is; being "a constant subscriber," just turn over our index, or "platforms," "stations," &c. Age of trees for kitchen- out three or four years from the bud or graft. PEARS on cks. Pears for your purpose: *Jargonelle, Dunnore, Williams' en, Beurre d'Amaluis, Louis bonne de Jersey, Beurre Diel, reeuw, Ne plus Meuris*. APPLES: *Early Margaret, Kerry olden Drop, Ribston Pippin, Pearson's Plate, Lamb Abbey, Old Nonpareil*. GOOSEBERRIES: *Early Green Hairy, Green mpagne, Warrington, Rockwood, Scorpion, Coe's Late Red, n, and Old Rough Red*. CURRANTS: *Black Naples, Hough- Red, Red Dutch, Knight's Sweet Red, and White Dutch*. RIES: *Fastoff, Yellow Antwerp, Large Fruited Monthly*. In d shrubs you will do well to apply to a first-rate nurseryman ogue.

GRASS (A New Subscriber).—In reply to your queries, Mr. the Glaanevin Gardens, says, "The *Pampas Grass* has been England, and found to succeed admirably. Mr. Hutton, of ark, near London, got a plant from the Glaanevin Gardens a ago, which now rivals any specimen which has yet been pro- Ireland. The foliage is very rigid, and much serrated at the sequently useless for cattle in the British Isles, where so many at valuable species of grasses are easily grown. On the great erican pampas, it is eaten by the herds of wild cattle which e these extensive plains. The foliage grows six feet long in localities, and the flowering culms from nine to eleven feet plants are strong; from six to eight on weak plants. It has

never yet ripened seed in Europe. The only way it can be obtained is by plants, which have been sent to the principal public gardens and nurseries in England and Scotland from the Glaanevin Gardens."

CINERARIA MARITIMA (A Subscriber, East Retford).—Send us your address on a stamped envelope, and a post-stamp with it, and we will forward it to a friend who will perhaps supply you. We cannot promise any alteration as to the last page.

MANY QUERIES.—X. Y. Z. wishes to learn a good mode of drying Cherries and Currants; how to *Crystallize Fruits with sugar*; whether a cheap Cider Mill worked by one man is procurable; and how to make Black Puddings?

GUANO (Ibid).—Lime is one of the worst of possible mixtures with guano: it helps to set free the ammonia in it.

DISSOLVING BONES (Ibid).—The bones should be ground fine, sprinkled with half the weight of the strongest sulphuric acid (oil of vitrol) that is to be used; and of this acid half-a-pound is required for each pound of bones. The mixture to be made in a cask much larger than is required for the quantity to be made, as the materials swell when mixed. Stir with a wooden pole, and be careful, as the mixture is corrosive.

RED-SPANGLED DORLING FOWLS.—If H. H. will send us his direction on a stamped envelope we have a communication for him.

ROOT-PRUNING (Omega).—Never mind the gravel; begin to grub through it sideways under the tree, and cut through any tap-roots that have entered it.

BEER-SHOPS (G. Dawson).—We quite agree with you that "one-half of what is yearly spent, in worse than useless drinking, in almost any neighbourhood, would more than amply supply the same with useful books and periodical literature." This is a fact that cannot be too much enforced upon cottagers.

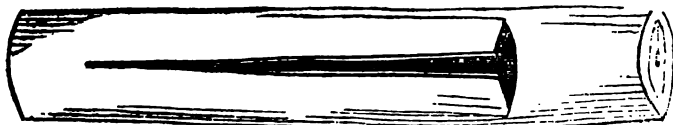
BEES—GAS TAR (W. F. G.).—We have seen bee-houses painted with gas tar that had been previously boiled, without injuring them by its smell; but it is a bad paint for the purpose, the bees alighting on it, and being entrapped as if by bird-lime.

HEATING A PIT (W. Salcombe).—Can any one of our readers state his experience of obtaining bottom-heat, as well as top-heat, by means of one flow and one return pipe?

CORNWALL POULTRY SHOW (G. E.).—The money stated after each prize winner, is the price asked for the birds exhibited. The large sums are usually intended by the owners to prevent a sale.

ARRANGEMENT OF COLOURS (Rhiwargor).—Mr. Beaton has no time just now. We will see about the other queries.

GRAFTS ON UPPER SIDE OF BRANCH (Veras).—We are sorry you can-



BRANCH PREPARED FOR RECEIVING THE SCION.



BRANCH WITH SCION INSERTED.

rehead how grafts can be put in a branch without beheading it. ke of our readers, as well as yourself, we insert a sketch Mr. has sent us, of his mode of *grafting* on the upper side of the of pear, or as he says, "of any other of the hardy fruits that be grafted." We trust you will profit by it. Your inquiries es in pots shall be answered shortly.

BERRY CATERPILLARS (T. M. W.).—We should pity the man id upon destroying these by putting a piece of furze in full the middle of the bush.

PAGE OF COTTAGE GARDENERS' DICTIONARY (G. H. J.).— blished, and the work concluded. Your seeds are of the Moun- ach or Orach (*Atriplex hortensis*). It is much used in France.

SOILING HOUSE AND GREENHOUSE (J. M.).—See what Mr. said to-day.

OR AMERICAN PLANTS (A Constant Subscriber).—The "moist t" you mention will not do under any circumstances. That is useful only for burning. You must not use lime either. If t obtain any real peat soil from a sandy heath, you must com- oil, as best you can, of two parts light gravelly soil, two parts part leaf-mould, and one part old sawdust.

A LEAVES FALLING (W. B.).—The roughness in the leaf is it; after flowering, and as new growth proceeds, many of the will get rusted and drop. This, however, is not the reason of young and old leaves dropping. We suspect it is solely owing it from a temperature of 50°, into a house very damp, and as es as the freezing point. We cannot see how the water should

get in, if the wood-work and glazing are near the mark. Such damp now would be ruinous to many plants. If the flue passing the end of the house will not give sufficient heat, you must either obtain more heat, or husband it by covering the glass in cold weather. Even in mild weather, get what heat you can, and ventilate freely, as this is not the time to give a close humid atmosphere to any flowering plants, unless those just beginning to grow.

CURRANTS AGAINST A WALL (*Mezembryanthemum*).—You may allow these to grow up in a single stem without stopping, and by pruning close have no wide-extending branches at all. The fruit is then borne in clusters close to the stem. If so trained on what may be called the long-rod system, the plants need not be more than three feet apart. Your other queries next week.

CUTTINGS (An Amateur).—Covering the soil in the pots with sand will be more effectual in preventing the cuttings damping-off than so covering the surface of the hotbed. Plunge the pots, and admit air day and night, if possible. Excess of stagnant moisture is the chief cause of damping-off. Sowing peas, or any other crop, year after year on the same plot, is very bad practice. See what Mr. Robson says to-day on "Rotation of Crops."

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WEEKLY CALENDAR.

M D	W D	FEBRUARY 12—18, 1852.	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
12	Th		30.152—30.040	46—37	W.	06	23 a. 7	6 a. 5	0 50	☾	14 32	43
13	F	Green Woodpecker cries.	30.074—30.002	47—34	S.W.	—	21	8	2 7	23	14 31	44
14	S	Valentine.	30.325—30.170	46—37	E.	—	19	10	3 21	24	14 30	45
15	Su	SEKAGRESIMA SUNDAY.	30.551—30.570	48—18	S.	—	17	12	4 27	25	14 27	46
16	M	Rooks build.	30.501—30.166	45—17	S.E.	—	15	13	5 35	26	14 24	47
17	Tu	Partridges pair.	30.112—30.061	47—34	S.W.	—	14	15	6 12	27	14 20	48
18	W		30.016—29.965	57—47	S.W.	—	12	17	6 49	28	14 16	49

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 45.9° and 32° respectively. The greatest heat, 57°, occurred on the 17th in 1847; and the lowest cold, 18° on the 18th in 1845. During the period 111 days were fine, and on 64 rain fell.

WHENEVER we hear it said of any one—"He is an enthusiast," we are always prepared to hear of a character not only capable of excellence, but adapted for effecting beneficial changes. We picture to ourselves a form of which Cæsar would have said—"Would he were fatter," for enthusiasts usually have "a lean and hungry look, and think too much." To such men as these we owe all improvements in the arts and sciences, whilst the "sleek-headed men, and such as sleep o' nights," usually are contented with the enjoyment of things as they are, and remain well-satisfied if that sleep is unbroken, and that head never bedewed with perspiration. Without enthusiasm, a man may be a very worthy, enduring, personage, but he will never be a great character; he will escape many mistakes and disappointments, but he will also miss much that is useful, and still more of bright and solid satisfaction. He will never rush out naked, like Archimedes, crying—"I have found it—I have found it!" but on the other hand, he never makes a discovery so important as to excuse him for being forgetful of his shirt.

Among the wildest of enthusiasts in our days, would be classed the private gentleman who not only proposed, but set to work to raise ten thousand pounds for a charitable object, by the sale of plants! Yet such a man in the last century was the REVEREND WILLIAM HANBURY, and, what will surprise some of our readers more, he went very far towards accomplishing his object.

Mr. Hanbury, when twenty-six years of age, in 1751, finding the collections of seeds and plants which he could then obtain from nurserymen were very limited, resolved to establish a nursery in his parish of Church Langton, in Leicestershire, not with any intention to appropriate the profits to himself, but to raise £10,000, and to devote this to the improvement of the church, and the establishment of various charities.

Objects so praiseworthy, one might anticipate could have met with no enemies; yet, true it is, that two maiden ladies resident in the parish to be benefited, adopted every measure within their power to frustrate Mr. Hanbury's beneficent design. They succeeded so far as to retard it two years; for having, with the consent of the parishioners, planted twenty thousand trees on a piece of copyhold land, on which they had a right of common, these two ladies, withdrawing their approval, had the fence broken down, and animals entitled to pasture turned in at a time of the year when the trees were incapable of removal, and were consequently destroyed. The names of these two ladies deserve to be commemorated—they were Mrs. Pickering, and Mrs. Byrd.

It is useless to follow these two lady-furies through their various efforts to annoy Mr. Hanbury, but it is an exhilarating fact that he pressed forward firmly and successfully, and in 1765, from the profits of the nursery, built an organ, put up three new bells, and erected a gallery in the church, besides having a surplus of £1500. With this, and other additions, he purposed to found a college, and other beneficial endowments, but death came upon him before he could realize his intentions. He died on the 28th of February, 1778, in his 53rd year, and his remains are deposited in a mausoleum built by himself, the inside of which, by his own direction, is of the best stucco, and a bright yellow. The coffin is covered with

black velvet, and ornamented with silver furniture, which are to be repaired as often as they become tarnished. On a compartment opposite the door is placed the bust of the founder, and under it these words: "I will not suffer mine eyes to sleep, nor the temples of my head to take rest, until I have found out a place for the temple of the Lord."—Ps. cxxxiii. 45. On the other side, over the door, is written, "Thou, O Lord, hast heard my desires, and hast given an heritage unto those who fear thy name."—Ps. lxi. 5. These compartments are black, and the letters are gold. The inside of the mausoleum is to be kept perfectly clean, and the door set open every morning, excepting in hazy, misty, or rainy weather, in summer by five in the morning till seven in the evening; decreasing in proportion till the winter quarter, when from ten till three in the afternoon may be found sufficient airing. And a cell is to be built for a woman of irreproachable character, who is to be allowed 2s. 6d. a week to keep it in proper order. The trustees of the Hanbury charity are enjoined to the due observance of the above regulations.

"With a firmness of mind equal to the benevolence of his heart," says Mr. Gough, "Mr. Hanbury seemed, in the course of about 20 years, to have brought to the utmost degree of maturity and stability human affairs are capable of, this singular undertaking, of raising from a plantation of all the various trees, plants, &c., the world produces, a yearly fund of near £10,000, sufficient to relieve the distressed, instruct the ignorant, adorn the parish, and benefit this and the neighbouring county of Rutland, as long as integrity and public spirit subsist in Britain, or dare to defy singularity and censure. This generous design claims a place here on a double account. We antiquaries have great obligations to this liberal founder, who has appropriated a part of this fund to the compiling and publishing a History of every County of England, by a Professor appointed on purpose."

To aid in raising the fund he desired, he began publishing in 1769, in sixpenny numbers, *A complete body of Planting and Gardening*. It filled 150 numbers, was completed in 1773, and remains in two large folio volumes a monument of the author's industry. Those who wish for fuller details of his struggles and labours to effect his object, will find them in another work, published by him in 1767, entitled, *A History of the rise and progress of the Charitable Foundations at Church Langton*. Nor is the undertaking without its laureat, for we have now a volume before us from the pen of a gentleman, rendered insignificant by his name of *Woty*, in which volume is a poem entitled *Church Langton*, where, dwelling on Mr. Hanbury's plan, he says:—

"No churchman dignified, no prelate high,
Proposed the scheme, or aided its supply,
No heir of fortune, no distinguished man
Of rank or birth gave sanction to the plan.
If dissipation, with all follies fraught,
Hath not extinguish'd ev'ry finer thought,
Start, grandeur! start and blush! when thou art told
A truth the muse with pleasure must unfold.
A generous Rector, a mere plain Divine,
Alone, unsaid, form'd the vast design,
E'en at a time when headstrong passions rule,
And oft degrade the wisest to a fool.
Yet here did youthful genius start aside,
Nor wanted dull experience for a guide;
Rare proof that genius of itself can climb
The steep of art without the help of time."

As it is to the interest of all our readers, whether they are the buyers or the sellers of garden produce, that where this produce may be obtained should be extensively published, we have no hesitation in giving prominence to this communication from a gentleman who has had a long practical knowledge of the subject on which he annotates.

THE PHILOSOPHY OF ADVERTISING is only understood by few persons, and it is as well for *them* that the knowledge of it is so limited. In the absence of publicity, Mr. A.'s nursery may have in its stock ten thousand over-grown or full-grown trees that must be thrown away the next season; and Mr. B. may be hunting over all the nurseries but the right one, endeavouring to find those very articles. An advertisement in a work cheap enough to be used by all, and read by all, would save Mr. B. all his fruitless journeys, and produce Mr. A. a good customer, for what at length brings him nothing. Be it remembered, too, that this sort of occurrence is common; there is hardly a well-established nursery in England, Ireland, or Scotland, but has some part of the stock "growing out of money;" that is, past the size and age in general use: and though it may seem strange to persons young in the business, or not in the business, thousands of subjects upon which great labour and money have been expended, *are periodically destroyed*, because, if kept longer, they would not safely remove, and they are not worth the labour of another removal in the nursery on account of their advanced growth. Advertising would stop the necessity for all this waste. Those who, for cheapness, buy younger and smaller plants than they really wish to use, would be induced to clear off a piece of full-grown stuff, if they knew where to obtain it; while others, who want things of larger size, may, in the absence of advertisements, hunt the country over before they can be found, and perhaps they are not found at all.

It may be objected, that there are so many periodicals to advertise in, that it is difficult to choose the one most likely to answer, and that all would be too expensive;—why then do not the trade adopt one that shall be seen by everybody?

Those who can remember from the years 1832 to 1840, when there were thirty or forty cultivators of the Dahlia for sale, and who used to advertise their full catalogues, will remember a period when advertising was one of the largest items in a florist's expenses, and from the year that the trade began to lessen their advertising, they lessened their sales in a much larger degree. From that moment, the public began to fancy that the flower was not so fashionable, and nobody has a notion, unless they have studied the subject, what a capricious animal that same public is. No sheep in a walk ever followed their leader more regularly than the mass of the public follow advertising. If the leading sheep of a flock makes a leap at a cabbage-stalk in its path, every one of its companions make the same jump, at the same imaginary obstacle; so while the garden periodicals teemed with Dahlia advertisements, everybody would grow them, and when the dealers left off advertising, the public caught the infection, and left off buying. That is to say, the majority of people who adopt a practice because they think it the fashion, declined growing them as soon as the publications seemed to show that there was a decrease of the interest which the world took in them. The dealers are rapidly aiding in this downward movement.

We have only mentioned the Dahlia, because its rapid rise and popularity was hastened by advertising; its decline was brought on by curtailing the means of publicity; but our observations apply to garden produce generally. Why have some men done more business than half the older and more established nurserymen? For no other reason than because they have disregarded the expense of advertising. People have seen their announcements until their names are as "familiar as household words," and the first novelty they wanted, they have ordered from the advertiser. Why have "Parr's Pills," and "Holloway's Pills," and even "Morrison's Pills," become articles of large commerce in all the towns in the kingdom? Simply because it is impossible to take up a periodical without seeing their wonderful efficacy set forth in all forms of paragraphs and adver-

tisements. No sensible man ever suspected that "Parr's Pills" added fifty years to a man's life, or that "Holloway's" could cure a man of a wooden leg, or that "Morrison's" were the universal remedy for all complaints. Every publication teemed with the wonders they had performed, and every wiseacre who fancied he had anything wrong in his health, tried them. How is it that a lady would as soon be without her comb, as be destitute of "Rowland's Macassar?" Simply because it was advertised as possessing a thousand virtues, until it was the fashion to use it, and this was followed by "Rowland's Kalydor," which completely put out of commission the mill at Old Ford, which was said to grind old people young. And all this popularity has been acquired by dint of constant advertising. Since articles not superior can thus be forced into a sale, he who stickles at fifty or a hundred pounds for advertising a really excellent article, which is sure to prove all that is said of it, is a sad mis-calculator. We remember to have heard an advertiser boast, that by a little judicious curtailment, he should save three hundred pounds in his advertising account alone, and when we saw him at Christmas, he was grumbling because of business he had done fifteen hundred pounds less. If, in short, a man wants to do business, and keep pace with the times, he must advertise. It creates business. Men are not much better than children, who want everything they see. A man always wants that that is constantly spoken of, written of, or placed before his eyes. The history of trade, past and present, from Moses's cheap clothes, to Warren's blacking, proves the advantage of advertising, and in no business is it so efficacious as in that of Horticulture. Flowers and fruit are luxuries, which he who has the least taste for them, if reminded of them by his newspaper, immediately discovers that he wants, and before he has read of them half-a-dozen times he feels that he cannot do without them.

GARDENING GOSSIP.

MR. F. Y. BROCAS, of Basingstoke, Hants, has just issued the second fifty species of his *Series of British Mosses*. They are excellent specimens, well mounted, and with their scientific and English names attached. We should be very unwilling to supply fifty such specimens, as he does, for five shillings. He has also published, on a single sheet, *A Catalogue of the Orders, Genera, and Species, of British Mosses*. It may be had for reference on thick paper, or on thin paper to paste on the Herbarium, and for foreign correspondence. Its price is no more than sixpence. We strongly recommend both these to our readers; and we need add no additional motive to the desire of possessing such excellent specimens and catalogues, than the fact that Mr. Brocas is raising a fund to enable him to proceed, as a botanical collector, to New Zealand.

The *Gardeners' Chronicle* has put forth one of the most severe accusations against the seed trade that was ever levelled against a body of merchants—there is no distinction; for they are accused, generally, of mixing dead seeds with live ones, which, in some instances, may be very true, but that such a charge can be brought against the whole trade, embracing, as it does, many honourable and wealthy men, we deny. Nobody will dispute that there are worthless members of a business, containing so many hundreds—men who depend on some trumpety agency from country growers, and retail inferior seeds; but such a charge can never be maintained against the body at large; and the only caution we should be inclined to give the public, is, to avoid

cheap seeds as they would cheap plants, and to deal with none but respectable firms.

Messrs. J. Weeks and Co., of the King's Road Nursery, Chelsea, inform us that *Akebia quinata* is now in flower.

They describe it as stem twining; leaves composed of five unequal, obovate, petiolated leaflets; flowers produced in racemes from the axils of the leaves of the young shoots; of a purple colour; corolla, none; calyx, of three cupped sepals. It is a very desirable new Chinese climber for a cool greenhouse or conservatory, being a plant of easy culture, and producing its flowers in great abundance; grows and blossoms well in a 10-sized pot. When kept in a stove, it becomes an evergreen, otherwise it is deciduous; but the foliage and flowers come together.

The glebe lands, belonging to the Vicar of Ormskirk, below the church, are now marked out into *garden allotments* of half a statute rood each.

The Vicar, the Rev. W. F. Rawstone, has let them out to workmen, at 13s. per annum, or 3d. a week, free from all rates and taxes. More land would have been taken on these terms if it could have been procured.

A clergyman, near Cork, writes to us as follows:—

As I communicated a few trifling particulars which were inserted in Gardening Gossip in THE COTTAGE GARDENER of December 11th, perhaps some readers might like to know how some of the plants there mentioned are getting through the winter. The *Sollya heterophylla* and *Escallonia rubra*, also the *Ecceimocarpus*, &c., are flourishing in high health, also *Richardia Ethiopica*. This last protected at night, but none of the others. Of the *Verbena beds*, covered with earth in November, any stray shoots left overground at the edges of the bed look healthy. The *Cupheas* and *Heliotrope* were cut down, and collars covered with ashes, to be left in that state until spring opens. One night's very severe frost in the beginning of December, cut down the *Salvia splendens* and *Fuchsia cordifolia*, till then in such fine bloom; they are now covered up similarly to the *Cupheas*. Had they been protected that night they would doubtless have continued doing well, as there has been no such frost since then.

Some years ago, no little amusement was created amongst those versed in north country affairs, by the appearance, in a London pictorial paper, of an engraving representing her Majesty and Prince Albert, when in Scotland, as stopping to witness the shepherds shearing their sheep. Considering the time of year in which it occurred, it rather startled south country farmers to learn that the Highland breed of sheep were so hardy as to afford losing their fleece in the month of October; but there it was, in unmistakeable print, and a sketch of the operation going on, as drawn by "our artist on the spot." Fortunately, there were papers published on or near the spot also, and they, too, recorded the movements of the royal pair, without the embellishments, and amongst other excursions, mentioned their having been to the shearers. Here lay the key to the mystery, which afforded our north country friends their joke in the affair. The word *shearing*, as generally used in the northern counties and Scotland, means the reaping, or cutting of the corn, when done by the sickle; and the local papers having simply recorded her Majesty and the Prince as stopping to look at the shearers, the London artist put the illustration to the credit of a crop of wool, most likely after consulting the Scotch paper and Johnson and Walker.

Now, though such an incident shows too clearly the value

of such engravings, we do not here stop to make comments, but to enquire if some of the terms we are in the habit of using may not be similarly misunderstood. Nothing is more common than the expression, light and heavy soils. Now, taking the first of these, a dry sandy soil is called light, although, bulk for bulk, there are few heavier substances than sand, and when added to other composts, increases their density rather than their bulk. Again, a clayey soil is called steely, livery, pinny, and we do not know how many names besides, as well as those more expressive of its character, as stiff, cold, and retentive. Now, though it would be difficult to express the condition of any particular soil in other than the local language of the district, we question very much if such explanation is not often misunderstood, at all events we think so. A correspondent in a gardening paper once complained at another using the term broad-shearing, as denoting an operation which differs widely from either of the cases we mentioned above, being in fact a scarifying of the ground to destroy weeds, instead of ploughing, the operation being performed by adding a certain plate or portion to that implement. But, the word being a local one, and we believe the process limited to that district, perhaps no suitable name could be given, and those not versed in the phraseology of different districts, forget to add some explanation by which the process may be known.

The raising of *improved breeds of poultry* is a taste participated in even by the native princes of Java; for Mr. Jukes, in his *Narrative of the Surveying Voyage of H.M.S. Fly*, says, that the Sultan of Bankalang, in that island, exhibited some very handsome cocks, apparently crosses between domestic and wild breeds. They were kept in large cages, entirely for show, and were most beautiful and noble birds. If the Sultan would send some as a contribution to our Queen's Windsor Poultry-Yard, they might still further improve our breeds.

We have often heard surprise expressed at the low price at which *rice* can be imported from Java and elsewhere, considering the enormous distance of the carriage; but when we know that the rent is nothing, that flooding with water is the only manuring, and read the following relative to the price of wages, and the simplicity of implements, the surprise will cease:—

The daily *wages* of a man here were 5 duits, or not quite 5-6ths of a penny English, and for this he could live very well. Rice is from 3 to 5 duits the catty, which is about 14 lb. English, and plantains and other fruits cost little or nothing. These are the chief food of the natives, the rice being flavoured occasionally with a little salt fish or stewed vegetables. Of clothing, the labourer requires little for ordinary wear, beyond a wrapper, and in a day or two he can cut bamboo enough to make a very sufficient house.

All the land seemed well cultivated, and carefully irrigated, though most of it was now fallow, or being ploughed and harrowed. The plough was very simple. The coulter was nothing but a large knife, stuck on to the end of a long bent handle, forming the tail, and from the junction of the two a long piece of wood projected forward, at the end of which was the cross piece or yoke for the oxen to pull it along. The harrow is equally simple, being nothing but a large rake, drawn by oxen, with the man who drives them sitting on the cross-piece. The small brown oxen, something like the Brahmin bull in shape, are most commonly used, and are said to stand the heat better than the great buffalo or mud ox, the skin of which is of a dark mouse colour, and nearly hairless, and which has huge spreading horns.

THE ORCHARD HOUSE.

As a desire seems somewhat prevalent amongst our readers to be instructed in the routine business of these simple and useful structures, we will endeavour to

gratify it by a few observations, recurring to the subject as often as appears necessary.

Mr. Rivers, the eminent nurseryman, and the originator of these economical structures, has the following remarks, explanatory of the objects of such buildings:—

"We have now cheap glass, cheap timber, and cheap bricks; it is, therefore, time to endeavour to neutralise the uncertainty of our seasons by glass, for glass, without the least addition of artificial heat, will give us the climate, in average seasons, of the south-west of France, and, what is of vast consequence, without the least hazard of injury from spring frosts, from which all temperate climates, both in Europe and America, suffer occasionally so severely."

Mr. Rivers has one orchard house with nothing but a beech hedge for a back, and the following is his description:—"I have an orchard house ninety feet long, the back wall of which is a fine beech hedge twenty years old, eight feet high, one-and-a-half thick; the front half-inch boards; the board next the glass, fifteen inches wide, is on hinges, and is always open in warm weather. This house is glazed with 16 oz. sheet glass, twenty inches by twelve, placed crosswise, so that the rafters are twenty inches apart. The glass is foreign, of the cheapest description, and cost 2½d. per foot."

Mr. Rivers describes the fruit-trees, comprising about 700 peaches, nectarines, apricots, figs, pears, plums, &c., as being in the most perfect health, and scorching unknown. To those who have not had access to Mr. Rivers' interesting pamphlet we may say, that fruit-trees of all kinds, in any degree tender, are cultivated by him in such structures in pots, the pots placed on a prepared bed of soil, and the trees in the main cultivated on a dwarfing system—a principle so long inculcated in *THE COTTAGE GARDENER*. All details connected with their culture will be given in due time; and now, for the sake of leading those uninformed, step by step, to a due appreciation of the subject, and to put them in a position to judge for themselves, we must beg leave to talk about the pots and potting, and thence proceed to branch culture.

Pots.—These may be of various sizes, according to the size and age of the trees, but, as a general rule, we should say 11-inch pots are amply sufficient. Pots of a moderate size may, when the trees are in fruit and ripe, be placed on the dining-room table if necessary.

Soil.—A compost of three-parts turfy loam, of sound character, and one-part manure, nearly decomposed, will be found to suit all, or nearly all, our fruits when kept in pots. The loam should, if possible, be obtained six months before use, and having been piled in a sharp ridge, to exclude all rain for that period, should be chopped down as wanted with a sharp spade, by no means using a sieve; nearly half will thus be in lumps about the size of an egg. Now, as the trees, or rather bushes, are to remain some years in the original compost, for disrooting is not in practice, and, perhaps, not expedient, a mechanical openness must be secured, and for this purpose a little sand, and some charcoal of the size of peas, may be added to the mass; for strong loam will in time attain a degree of closeness which will oppose the free and equal passage of liquid manure. And here we must be permitted to interpose what we will, for the present, term an opinion, and that is, let the soil be so compounded, and the tree so trained from the beginning, as that every cubic inch of soil in the pot may be rendered capable of doing service to the plant, so long as it shall be deemed necessary to continue it in a pot.

CHOICE OF SUBJECTS.—Now we have arrived at a rather important point, a point involving many matters for consideration. To speculate on what fruit-trees *might* be rendered by a due attention to dwarfing principles, commencing from the very first year of the

seedling stock, would tend to overlay the subject in hand. No man has done more in this way than Mr. Rivers; and although we do not differ from his practice in anything worth stepping out of the way to record, we would merely observe, that the principles on which he has acted are capable of some expansion, and in due time we hope to be able to lay down our notions thereon before the readers of *THE COTTAGE GARDENER*. Mr. Rivers very wisely recommends trees which have already received pot culture, thus,—"The most eligible trees for pot culture are those that have been in pots one or two years; if these can be purchased, so much the better; if not, trees that have been removed and cut down one year in the nursery; if neither of these descriptions of trees can be found, dwarf maiden trees will do." "Maiden" is a term applied by the nurserymen to trees one year old from the graft or bud.

MODE OF POTTING.—Some pots about eleven or twelve inches diameter, and of similar depth, being provided, "proceed," says Mr. Rivers, "to knock the hole in the bottom to about five inches diameter." This is good advice. We advise those, however, who are for orchard-houses in earnest, to have pots made to order for the express purpose. These should have some five holes in the quincunx form, equi-distant over the bottom, and such in our way of thinking, should not be above an inch each in diameter. We reason thus: it will not be good policy to encourage many *large* roots through the bottom, but rather a multitude of small fibres, in order that the annual mutilation may not be unnecessarily severe, for Mr. Rivers recommends these roots to be cut clear away, every season, in October. In potting them, pots herds of a curved form should be so placed as to secure a free outlet for the fibres; if properly done, various apertures of half-an-inch in diameter will be secured. And now these must be protected against the sediment arising from the decomposition of organic matter, carried downwards at all times by mere gravitation. We here suggest a thin coating of charcoal, sifted to about ½-inch pieces, those will act as filters, and the sediment lodged above them will be a rich pasture for fibres. Over the charcoal we would strew a layer of new horse-droppings, and on the latter a small portion of the fibrous turf of the compost. Now we do not say that this is the only good course, or even that it is the very best, but it is a mode of "bottoming" that we have repeatedly proved to be particularly successful. The young tree's fibres having been liberated somewhat, and every bruise or blemish carefully submitted to the ordeal of a sharp knife, and an attentive eye, taking care, also, that every vestige of a suckering propensity is removed; the plant may be placed in the pot, and care taken that the highest indication of surface-roots is an inch or two below the rim of the pot, if unfortunately higher, the plant must be taken out, and the bottom reduced in size, with a correct view as to depth. The ball or roots will now be on the turfy lumps, and the filling may proceed, by continuing to introduce the fibrous clots of turf frequently, as the filling proceeds, using a blunt stick, and ramming the soil slightly as the filling proceeds. When within an inch or so of the rim, the whole may receive a coating of half-rotten manure, as a top-dressing. The bushes may now be set at once on the floor of the orchard-house, if prepared, if not, plunged in a sheltered nook, the pot above the ordinary ground-level.

SUBSEQUENT TREATMENT.—The treatment requisite for maiden plants newly introduced to pots, and those which have been under the auspices of such good managers as our friend Mr. Rivers, should differ somewhat. The former accustomed to run riot through the ill-bestowed liberality of a life of freedom, from the planting of the stock onwards; the latter made to "know themselves betimes," and not to suffer their ram-

pant propensities to have full sway. Such is the position of their respective characters; such the position of affairs with those who have to teach them "how to shoot," during the first year. Moreover, it is not fair to "lump" the treatment collectively, of all fruits, at whatever age. And this leads us to say, that we are merely opening the subject for future papers, for the subject, in its proper details, is by far too extensive for a column or two. We will, therefore, say something to the point monthly, henceforth, and our sayings will, perhaps, assume something of a calendarial form, for brevity's sake.

And now to return; the growing trees have to be pinched or stopped as soon as any given shoot is well developed, and the younger ones induced by high culture to form a full tree betimes. This we briefly hint at for the present, the month of May will be soon enough to go into detail. As some of our friends may be desirous of selecting and potting a collection of fruits wherewith to commence operations, or to prepare for it in the following year, we will subjoin a list of kinds adapted, first making a few observations of a general character.

Although Mr. Rivers, in his ingenious pamphlet, advocates wood and glass for such structures, he at the same time suggests that old houses may be soon rendered fit for this purpose, by merely lowering the roof, if high, sinking a central pathway, and introducing sliding shutters back and front. He says, "The grand essentials are, low roof, borders instead of benches, and constant ventilation, more or less according to the state of the weather, through the shutters. As to distance, about two feet apart may be calculated on as absolutely necessary." Prepared borders are requisite, for the trees have to root through the pots, and thereby derive the chief of their nourishment from the border; the roots they produce in the border being cut away every October, from which period until February they may be huddled together to make way for chrysanthemums, roses, bedding stores, &c. These borders are, therefore, made porous; coarse lime rubbish, cinders, broken bricks, &c., forming the foundation, and a covering of fertile soil above, the latter roughly forked in amongst the bottom material.

KINDS RECOMMENDED BY MR. RIVERS.—APRICOTS.—*Early Red Masculine*, Large Early Musch-Musch, *Blenheim*, *Moorpark*, Peach, St. Ambrose, *Royal*, *Jardin d'Orleans*. These give a good succession, and stand, as do all which follow, in the order of their ripening.

PEACHES.—Red Nutmeg, *Early Anne*, *Early Tillotson*, *Acton Scott*, *Gross Mignonne*, *Gallande*, *Noblesse*, *Royal George*, *Pourpree Hative*, *Reine des Vergers*, *Barrington*, *Chancellor*, *Walburton Admirable*, *Late Admirable*. These, Mr. Rivers observes, will carry on a constant supply from July until the middle of October.

NECTARINES.—*Hunt's Tawny*, *Etruge*, *Hardwicke Seedling*, *Pitmaston Orange*, *Violette Hative*, *New White*, *Roman*, *Early Newington*, *Newington*, *Late Melting*.

PLUMS.—*Early Favourite*, *Early Orleans*, *Royal Hative*, *Peach*, *Imperial Ottoman*, *Purple Favourite*, *Mamelonne*, *Isabella*, *Oreengage*, *Columbiu*, *Reine Claude de Basay*, *Tay Bank*, *Lawrence's Gage*, *Jefferson*, *Knight's Green Drying*, *Reine Claude d'Octobre*, *Coe's Golden Drop*, *Imperatrice*, *Ichworth Imperatrice*, *St. Martin's Quetsche*, *Coe's Late Red*.

CHERRIES.—*Corisso Indulle*, *May Duke*, *Archduke*, *Jeffrey's Duke*, *Belle de Choisy*, *Early Purple Guigne*, *Amber Heart*, *Knight's Early Black*, *Werder's Early Black*, *Black Eagle*, *Elton*, *Bigarreau Napoleon*, *Bigarreau*, *Holland Bigarreau*, *Florence*, *Reine Hortense*, *Late Duke*, *Griotte de Chaux*, *Louis Philippe*, *Coe's Late Carnation*, *Belle Magnifique*, *Morello*.

PEARS.—*Dunmore*, *Brown Beurré*, *Beurré gris d'Hiver Nouveau*, *Doyenné d'Hiver Nouveau*, *Easter Beurré*,

Glout Morceau, *Borgamotte d'Esperer*, *Gansel's Borgamotte*, *Duchesse d'Orleans*, *Beurré d'Aremberg*, *Beurré de Rance*, *Crassanne d'Hiver*, *Bruneau*, *Doyenné Goubault*, *Marie Louise*, *Passé Colmar*, *St. Germain*, *Van Mon's Leon le Clere*. As early summer pears, the *Doyenné d'Eté*, *Jargonelle*, *Citron de Carmes*, and *Colmar d'Eté*.

APPLES.—American kinds.—The Green and Yellow Newtown Pippin, Northern Spy, the Melon apples, Male Carle. Of *English sorts*, such as the Ribston Pippin, Nonpareil, Golden Pippin, Golden Reinette, Van Mon's Reinette, Coe's Golden Drop, Sturmer Pippin.

FIGS.—White Ischia, St. Jean, White Marseilles, White Genoa, Brown Turkey, Nerii, Peregusata.

GRAPES.—*Purple Frontignan*, Prolific Sweet Water, *Purple Fontainebleau*, Black Esperione, *Grove-end Sweet Water*, Cambridge Botanic Garden, Black Frontignan, Purple Constantia, Chasselas Musqué, Chasselas Rose, *August Muscat*, *Flame-coloured Tokay*, *Black Hambro*.

In giving these collections, we have deemed it expedient to allow Mr. Rivers to be fairly represented, he being the originator of the thing. The *selections*, however, in italics, are our own, and intended as a tolerably sure guide to be preferred by those in a small way.

Other portions of this interesting subject will be handled in due course. R. HARRINGTON.

BEDDING GERANIUMS.

THE DIADEMATUM SECTION.—This is the most distinct, and the most generally cultivated, section of all the old-fashioned geraniums, for you may meet with two of its kinds in almost every garden where such things are admitted.

The *old Diadematum*, with hard, smooth, shining leaves, and peach-blossom-coloured flowers, streaked with small vein-like lines, crossing each other sometimes;—that is, the petals are between what a botanist would call *reticulatum* and *striatum*—between netted and streaked. I wish to be thus particular, because I have been asked, I know not how many times, what is the difference between the two *Diadematums*, this and the next one being often confounded the one for the other.

I do not know the wild parents from which this section comes down to us, nor do I think it is in lineal descent from a wilding, but that it originated from an extreme cross; and one can tell to this day that the blood of one of the parents in this cross is mixed up in the large prize pelargoniums, but at this moment I cannot call to mind the names of any of the pelargoniums in which it is prominent, but a dry, smooth leaf, delicate constitution, and a loose style of flowering, are sure signs of an affinity with *Diadematum*. It is next to presumption to say that this *Diadematum* is barren, but I believe it is quite so, although it yields pollen. In the language of cross-breeding, every anther on a plant may be full of pollen, and that pollen may act on a different flower; but if the plant, with all this pollen, cannot be made to seed itself, we call it barren. Besides being a good bedder, *Diadematum* is an excellent basket or vase plant; it comes in pretty early for cut flowers, if kept a little warmer than greenhouse heat, but it will not stand much forcing or confinement. It comes from cuttings all the season, and one time is as good as another to make cuttings of it. It is very easy to keep over the winter, and, like all *Diadematums*, the soil cannot be too rich for it, but it should not be stiff.

Diadematum rubescens.—Of the two this is, considering all its qualities, the best bedder; and when in the height of its beauty many ladies prefer it before *Lady Mary Fox*, but to settle the question without raising a dispute, let us say they are both best. About London they call it *Diadematum superbum* of late years, but I had it by

its right name a week or two after the passing of the Catholic Emancipation Bill, and, I think, from Mr. Baily, then gardener at Dropmore. It is quite different in aspect from the last, having very soft leaves, and much darker flowers, with a more close habit of growth. Indeed, it is the best-habited plant of all our bedders, except a seedling from it called *Regium*. I never had but this one seedling from it, or from this section. There were three or four seeds in the pod, but two only vegetated, and one of them I could not rear; but, seeing that an only seedling turned out a first-rate bedder, we may consider this geranium as at the very head of all our breeders; and I would strongly advise a whole army of cross-breeders to lay siege to this stronghold, and strong enough they will find it, I promise them.

It forces in the spring much better than the original *Diadematum*, and would make a specimen plant as well as any of the large prize pelargoniums, for a greenhouse or exhibition stage. It comes easily from cuttings all through the season, and is not difficult to keep through the winter.

Diadematum regium.—This is a new seedling, which I obtained from the last; and, with the exception of the leaves being less soft, every word which I have said about *D. rubescens* will apply to it also. It comes up to *D. rubescens* in every respect, and, like *Spleenii* and *Mrs. Jeffries*, it will make an excellent match bed with *D. rubescens*, in a geometric arrangement, and after a few years it will very likely seed, but at present it has no disposition to do so. I am not quite certain of its pollen parent, because I was on the point of giving up the cross altogether, when I got a chance pod, after applying the pollen of every geranium that I could think of as likely to breed in the section, but from the beautiful tints of the flower I think *The Priory Queen* was the pollen parent; and I would strongly advise this *Queen* as a breeder for perpetual bloomers, such as we require for beds, to be used both ways—to seed and to yield pollen; but it does not easily seed under pot culture, nor is very free to seed even in the open borders.

I sent *D. regium* to some of the public establishments round London, and I think it must be had now in the trade, and that Mr. Appleby could supply it. From him I first received the pretty little *Diadematum bicolor*, a striped flower which makes a very pretty little bed from two-year-old plants. It is the dwarfiest in this section, is quite barren, stands as much heat as a pine-apple, and must be increased from cuttings early in the spring, as it is slow to root after it comes into flower, and summer-struck cuttings of it are bad to keep through the winter. When the geraniums come into flower next May, if I am spared I shall look round the nurseries, and give the names of all those that are in affinity with the *Diadomatums*, and are the most likely to breed with them. I wish I had made out a list of these kinds before, but the truth is, I had no idea, for a long time, that these notes would have been called for.

The Curate.—I have alluded to this little plant already, and shall merely say of it now, that it is the dwarfiest of all the bedders of this class, and though not very showy, is always in bloom, and is indispensable in a large collection. It borders on the Oak-leaved section. The leaves are small, and so are the trusses and the individual flowers; they are dark red, with black spots on the upper petals, and also a little streaked with dark lines. It would match with the *Shrubland Pet*, and the *Gooseberry-leaved* sort; also with the *Dandy* and *Golden Chain*, and *Lady Plymouth*, or *Variegated Oak-leaf*, alias *Variegated graveolens*, where a lot of little compact beds could be disposed side by side in a lady's flower garden, or, better still, in a children's flower-garden, where all these pet things would be just at home and in character. *Lady Plymouth*, with its variegated oak-leaves, and pale lilac little blossoms, would make an exquisite edging for

a bed of *Curate*, or *Diadematum bicolor*, or it might be used by itself. It is a sport from *Graveolens*, or *Rose-scented Geranium*, and should always be propagated early in the spring, long before it comes into blossom, as it is difficult to get good cuttings from it in summer without taking the flower-wood or shoots; and they never make strong plants, or show the true character of the variety, if you keep them ever so long. Mr. Jeffries, at Ipswich, grows it faster than any one I know, and he has it always in peat, or mostly so; but the other day I saw several plants of it with Mr. Mallison, at Claremont, the finest and strongest I ever saw, quite different from the usual run. They were growing in a kind of soft yellow loam, but quite light, and they put me strongly in mind of what I have often said about particular soils suiting or not suiting certain kinds of plants, without our being in the least able to say, or tell of the effects before-hand. Witness the *Solfaterre Rose*, which does so well with some of our correspondents, but if you take buds or cuttings from their plants, and plant them in what you may think the very same kind of soil, the chances are that they would turn out good-for-nothing, like my old plant. There was a fine *Strawberry* some years since called the *Downton*, which was condemned all over the kingdom, while I was growing it the finest of the fine, and the family would use no other sort as long as they could get the *Downton*, yet it would not grow but on one quarter in the garden, and that I at last foolishly trampled, and from that day to this I could never grow it again, and I had sad complaints about the loss of it. Take, as another instance, *The British Queen Strawberry*. It is allowed to be one of our finest sorts, yet, after all we could do with it at Shrubland Park, it was not worth picking off the ground, nor would a row of it twenty yards long produce a fair dish at the height of the season. In pots and forcing the same—I even changed the stock three times, and at last had runners direct from Mr. Ingram, from Her Majesty's garden at Windsor, with whom I saw the finest crop of it I ever saw of any fruit, but, like the rest, they turned out good-for-nothing, and I shall be curious to know if Mr. Davidson, my successor, can do anything with it.

Now, it may turn out that many of those bedding geraniums which I have pronounced barren, may not be so altogether on a different soil, and I never did much with them experimentally but at Shrubland Park; I am perfectly confident, however, about all my remarks on them in that kind of soil, for I seldom missed a season without flowering thousands and thousands of seedlings, and, for want of room, I had often to plant whole rows of them between the cabbages in the kitchen-garden. This last season, I had a beautiful bed of the last seedling that was named for me—they named it, by consent, *Sir William Middleton*, after my worthy employer. Any one who has visited Shrubland Park in my time, will allow that neither he nor his gardener would allow a seedling to be so called unless it was up to the mark. It belongs to a section in which no good bedder has yet appeared, although, judging from the *muddlers* which some growers are contented with in the same breed; it is, and must be, a general favourite section for bedders. It first appeared in the fourth generation from *Jehu* and *Yetmeniana grandiflora*. The section of *Yetmeniana* has produced more varieties of bedders than all the rest of the sections put together, and yet there is not one of them a first-rate sort. *Yetmeniana* appeared about the same time as the fancy *calceolarias*, in 1831-32. It has a reddish ground, with a dark spot in each of the three front petals, and the two back petals nearly black. It was a seeder, and soon produced a larger flower in all respects like itself, only that the plant was a little stronger in growth. This was called *Yetmeniana grandiflora*; both of them being good breeders, and not being very particular with which kinds to cross, I kept them

both to the last, and, like the rest of our breeders, I had many crosses from them that passed the ordeal of two or three years' growth. Some people admired them, and do admire them to this day, but I confess I am not of that number. Their original dark spots, mixed and turned into a chocolate brown, as in *Madame Melliez*, *Belle d'Afrique*, *Statuiskii*, and all those "black-and-all-black" sorts which disfigure the exhibition tables to this day, but still help to carry off prizes for want of better things. At the last July exhibition in the Regent's Park, I saw I know not how many seedlings from this class much improved; the brown, rusty colour being a good deal washed out by new blood from the little fancies, and now that the two races have united, we may soon expect a great improvement in this style of bedders. Even the large prize pelargoniums of the florists have at last been impregnated with fresh blood from the race of *Yetmeniana*,—witness Hoyle's *Ocellata*, a most beautiful flower, as distinctly marked in the three front petals as if it came from *Yetmeniana* itself.

Seeing all this as clear as daylight, we ought to be very careful not to lose the old *Yetmeniana grandiflora*, because, after awhile, its character will either be lost by too much colour from others, or the race will turn barren; and if we lose the original stamp, we must submit to a dead stoppage, as in the case of those barren ones which I have mentioned already. The flower-gardener must look to this, for the florist never dreams of such things; but, in his anxiety to gain size and form, and a ready sale for his plants, he is as sure to run into a circle, as that this section of *Yetmeniana* is the most promising we have to originate a fresh and improved style of bedders from. The *Jehu* breed is the next best section, or, at any rate, the most promising to yield a ready harvest; but, as it stands at present, the breed of *Jehu* is too strong in growth, and must be reduced by mixing with it those of an opposite character, from the higher-coloured among the fancies.

D. BEATON.

REPOTTING AZALEAS AND CAMELLIAS.

AZALEAS will now be swelling their buds, and many in bloom, if slightly forced; and Camellias will most likely have been in bloom for some time, while many buds are yet to be unfolded. In these circumstances, watering with clear manure-water in a weak state will often be attended with advantage. Four ounces of super-phosphate of lime, and two ounces of guano, will be sufficient for four gallons of water. Nothing, however, is better than old cow-dung mixed with a little soot, and a slight portion of quick-lime thrown in, not to increase the strength of the liquid, but to clear it. When a barrel is not handy for this purpose, some dried two-year-old cow-dung may be used as a top-dressing, and the water spread equally over it with a rosed watering-pot. It will soon tell in giving a more glossy, healthy tint to the foliage.

There are many opinions as to the best time of repotting these plants, some advocating spring, and others autumn, and no doubt different practitioners find different times to answer best with them. Different times have been recommended even in the pages of this work. I have uniformly given the preference to the period when fresh growth is commencing, after the plants had finished flowering, and they had received what pruning was deemed necessary. Facts, in such matters, are the only and best supports of theory. It matters not in what direction these facts point. Partial disappointment ought to be as useful a teacher as the highest success, for failures faithfully noted, point to the rocks to be avoided. Some Azaleas, from having been forced early in winter, many years ago, have ever since, of their own accord, when placed in the conservatory,

opened their bloom in January. The plants did better and better every year. If they had any fault at all, the buds were so thick that there was hardly room for the blossoms to open. These plants had been in the same pots for several years, and though they betrayed no appearance of declining vigour, I made up my mind that this must come at last, and resolved upon giving them some more feeding ground. They had, in previous years, made their wood in the conservatory, placed at one end, and that kept as moist and close as possible, until the young growth was sufficiently elongated, when more air and a drier atmosphere was admitted, that the shoots and buds might be hardened before placing the plants out-of-doors.

This last year, in order to give them a better chance still, they were moved into a late vinery, where they could be kept warmer and closer than in the greenhouse, to prepare them sooner for a repotting. But from want of large suitable pots at one time—and the hurly-burly mass of matters that came pouring in upon us in the spring and early summer months, at another—day after day passed with these Azaleas staring us in the face, until out of two evils, I preferred waiting until early autumn, when the buds would be firm, instead of giving them any check when the shoots were growing so freely. The results are two-fold; the bloom has not opened so early by a fortnight or three weeks, and though the plants are healthy, and passable as to bloom, yet so many buds have gone blind, that the blooms will not be at all incommoded for want of standing and expanding room. I have no doubt but that next season the plants will be very fine, but previous experience in the matter leaves on my mind no doubt but that they would have been equally fine this spring, if they had been repotted in the spring or early summer, instead of the autumn.

Camellias do not show the late shifting so much as the Azaleas, but still I do not think the flowers are quite so large as usual. Facts in my case, point, therefore, to spring and early summer repotting. Some of our esteemed coadjutors may have found autumn the best period, and if there is some peculiar matter, however apparently trifling, attention to which would ensure equal success *then*, the knowledge of it would be of great importance; as in circumstances similar to those alluded to by Mr. Errington, the other week, amid the mass of matters claiming attention in April and May, there is but little opportunity for attending to the potting, even of the best plants. The month of August arrives before we scarce can get breathing time.

One word more. Some of our friends seem to imagine that such plants require a hotter place than a greenhouse to make their wood, but by keeping them at one end, and by keeping them closer there, the plants will give as much satisfaction as if they were turned about from house to house. Those Azaleas intended to bloom late, say in June, should be kept as cool as possible, and in a month be taken altogether out of the house, and merely protected from rains and frosts.

R. FISH.

WINTER AND SPRING-FLOWERING CINERARIAS.

"HAVE you any Cinerarias in bloom?" inquired a friend the other day. "I cannot succeed at all with forcing them. I wrote to Mr. —, inquiring, and he says they will not force." There is no difficulty that I am aware of, in having Cinerarias in bloom all the winter, if you like, provided the temperature is high enough for the blossoms to expand, and to do so it should not range often below 45° at night, with 10° rise from sunshine, if one of the following points is attended to.

First, seeds should be sown, at the latest, in April, or the beginning of May, the plants pricked out, kept under glass, and then, in July, either grown on in pots, in a shady, airy place, or, which is better still, planted out in a similar place, in nice, light, rough, rich soil, watered when water is wanted, lifted and potted by the middle of September, kept close, and frequently syringed for a fortnight, and plenty of air admitted by degrees. By this mode large flowering plants may be obtained in the middle of November.

From early-blooming plants of favourite kinds suckers can be obtained early in May; these pricked out in a close pit or frame, and afterwards either potted or planted out like the seedlings, will furnish nice, large, early-flowering plants. Again, as I have previously mentioned, plants that have stood in their flowering-pots until July or August, the flower-stems having been removed when blooming was finished, being taken to the potting bench, most of the old soil removed, and the young shoots picked out, so as to leave only from three to half-a-dozen remaining, potted, watered, and kept close for a few days, will also furnish good-sized early-blooming plants.

Either or all of these modes may be tried safely, when largish-flowering plants are desirable. But, secondly, where variety is the object—or, as in the case of our good friends the window gardeners, flowering plants in small pots are the objects aimed at—then sowing and planting of suckers will be early enough in June and August, respectively. The great point, when early bloom is wanted, is to have the pots filled with roots before the end of October—then flower-stems will begin to rise of their own accord. The curbing of the growth directs the energies of the plant into the flowering and seed-producing processes. With young plants at such a season, and plenty of pot-room, no coaxing, no forcing, can make them flower satisfactorily; for if they bloom at all, the flower-stems and flowers alike will be of a pigmy description. So much is this the case, that fine large plants late in the season—say from June to July—can only be procured by commencing late with young plants, and never allowing them to have a check from want of pot-room, managing it so, however, that the pot shall be filled with roots before you want the flower-stems to rise.

I have grown some monsters of these in my time, but I was never satisfied with these huge plants, as several smaller plants, occupying the same space placed together, such as in a vase or basket, would in general look better. For small greenhouses and windows, nice flowering plants may be had in pots ranging in size from three to five inches, more especially if a small saucer is placed beneath them. I have taken the smaller of these sizes out of their pots, and packed them firmly together in vases among half-decayed moss, with a little green on the surface. They stand this roughish treatment well when in bloom, and a little manure water gives them ample nourishment. Of course, if you think of exhibiting, you must keep to single plants. I have known cases where disqualification and exposure ought to have been the reward instead of a prize.

Now is a good time to purchase some of the best kinds—you will thus escape the risks of winter. Encourage growth by potting as they require it, for two months at least, in light, sandy, rich soil. Keep them in a close moist atmosphere, a little shaded in extra bright sunshine, or, if exposed, just draw the syringe so as to dew the foliage, leaving a little air on. Give them a temperature of from 45° to 50°, with 10° more for sunshine: and at least every week, if there is such a thing as the slightest trace of fly, apply a whiff of tobacco from the fumigating machine, giving the dose often, rather than much at a time. As soon as the flower-stems commence appearing, give more air, and clear manure

water of the temperature of 60°, alternately with common soft water.
R. FISH.

FUCHSIAS FOR WINDOWS AND OUT-DOOR VASES.

In the early part of a January, I once was accosted in the following manner:—"Do not my Fuchsia plants look beautiful and green. I have given them so much attention, watered them so nicely, sponged the leaves, moved them to a snug place in cold nights, and watched them carefully. But will they bloom well, and better than Mrs. Brown's, whose plants are now as brown as a hazel nut, and not a green twig on them? And yet, what do you think she actually told me, that her brown plants would do mine *brown* before the month of June had come and gone." We shall not repeat what we said when an opening was at all given to edge in a reply to such a descent of queries and statements, farther than to mention that the plants referred to were just *too green*. They had received no pruning, but a very moderate portion of air, and were kept in a warm sitting room, the excitement of which had greatly elongated some slender shoots, all that could be expected from which were a few early flowers, and a weak, debilitated plant afterwards.

It would better serve our window friends to tell how Mrs. Brown always managed to have such nice stocky blossom-covered plants in her window in summer, though they never appeared there at all among her sweet-scented geraniums, primulas, and bulbs in winter. Well, no sooner did the plants begin to be a little shabby in the window, from the leaves dropping and getting discoloured, than out they were bundled to any place full in the sun, out of doors, supplied freely with water at first, and less freely afterwards, so that the wood should be well hardened. As soon as frost came, they were removed in doors, and the first opportunity that presented itself, they were stored away into a place, half lumber-room, half cellar, with plenty of air whistling through it. Any out-house or shed would answer equally well. There was no danger of damp, but then the current of air made it likely that there might be too much dryness, and she had no mind to use a water-can during the winter. She wanted the soil to be kept a little moist, and not thoroughly dry. An old empty box stood there, it was filled with moss, and in this the pots were plunged, and covered for six inches, while a little dry straw was fixed over the stems, and there they remained from the end of October to the end of February, and in cold springs, with piercing east winds, for a month longer. Various things had been tried for plunging in—short dryish dung, saw-dust, hay, but moss was preferred, hay was apt to mould, and thus injure the stems, a matter of no great consequence, as when cut down, suckers came in plenty, and one could be selected to form a nice one-stemmed plant, but then such a plant would not bloom so soon as when the shoots came from the old stem. As spring approached, the plants used to get a look now and then, to see if the buds were breaking, and to examine if the soil was not too dry. When the young shoots were a quarter-of-an-inch in length, the plants were pruned. Cut well in the young shoots of last season, on plants of one stem, being shortened to a spur with one or two buds. With many things it would be best to do all this in the autumn, but in this instance you can never use your knife with more certainty, though thus removing a considerable portion of the strength of the plant. If a spur low enough to please you do not break, cut the plant down to the surface of the soil, and select one or several shoots as they break.

The plants were left alone after pruning, until the shoots had grown from half-an-inch to an inch; then

they were taken out, and either repotted in similar or larger pots, using rough, light, rich loam, with plenty of charcoal, and comfortable as respects heat, and neither being dry nor wet; or, if the drainage was all right, and the pot deemed large enough, the surface soil was removed and a top-dressing communicated, of equal portions of loam, cow-dung, and charcoal. Before shifting, the balls, after losing most of the earth, were allowed to soak for several minutes in a pail of water of the temperature of 70°, and thus, after potting, it was not necessary to water much, if any at all, before the new roots were working in the new soil. After potting, the plants were removed to a place where they would have rather less air and more light, and, in the course of a fortnight, they were admitted to the window-sill. In all this there would not be a tithe of the trouble of keeping them in the window all the winter, while in most cases the results would bear no comparison.

For vases and beds less care will be necessary, but I cannot intrude here at present; I will merely mention a fact, tending to show that in trying to keep the shoots of fuchsias alive out-of-doors there may be more than labour lost. Last season a bed of *Fuchsia Riccartonii* was found uninjured in spring, and breaking into fresh shoots all over; high hopes of its coming glory in summer prevented us cutting its shoots level with the ground, as usual. After being well top-dressed, and producing a few early flowers, it was a complete blank, keeping green, but neither flowering nor even growing much for the whole season. Other plants, cut down, were three times the height, and loaded with bloom, and, instead of being top-dressed, had merely some moss laid over the roots.

R. FISH.

PROPAGATION OF EXOTIC ORCHIDACEÆ.

(Continued from page 272.)

ANACTOCHILUS.—These plants, remarkable for the beautiful markings of their leaves, are readily increased by taking off the side-shoots as soon as they have formed roots, potting them in small pots, in a light sandy compost of peat and leaf-mould, and placing them under a hand-light, upon a heated surface of coal-ashes or sand, which should be kept moist, so as to maintain a warm, moist atmosphere under the hand-light. The best time to do this is in early spring. The old plants will afford side-shoots more readily if the flower-stems are broken off as soon as they appear. The flowers, though curious, are not particularly pretty, therefore the sacrifice is of less consequence.

ARUNDINA.—To increase these pretty flowering plants, it will be necessary, at the time of potting, to divide the bulbs one from another, in patches of two or three each, so as to make good plants at once, treating the divisions exactly like the whole plant.

BARKERIA.—This genus sends forth numerous shoots. The way to increase it is either to break a large plant into small ones, or to take off two or three back pseudo-bulbs; place them upon blocks, without moss, in spring; syringe occasionally till they break, and then more freely till they perfect the new growths. They may then, in the spring, be collected together, placed in an open wooden basket, and so form, in a season or two, a fine specimen.

BLETIA.—The pseudo-bulbs of this family approach very nearly to real bulbs. To increase them, take off at potting time one or more bulbs, pot them, and give a little extra heat till they begin to grow; then cultivate them like the parent plants.

BRASSAVOLA is increased by dividing the plants into two or more portions, which may be readily done, as, with one or two exceptions, they are much inclined to branch out freely. The exceptions are *B. glauca* and *B. Digbyana*. These are probably the best of the genus.

They may be increased by cutting off two or three of the back pseudo-bulbs in one piece, placing them upon a bare block, syringing gently every other day till the dormant bud breaks, then increasing the supply of water till the new growth is perfected, and giving it after that the usual period of rest, and when it begins to grow again, potting it, and treating it like an old one. In this way these fine plants may be successfully increased. It is, however, a tedious operation, and requires a large share of patience before they flower.

T. APPELEY.

(To be continued.)

FLORISTS' FLOWERS.

We gave the lessons on *Dahlia* growing as the lessons of 1832, not 52, and we chiefly gave them to show that there is nothing new in the writings of later date. The *Chrysanthemum* was treated at some length by us many years ago, and though we have treatises by new people coming out, there is nothing new in them. The same may be said of the *Pansy*, the *Carnation*, *Pink*, *Hyacinth*, *Geranium*, and other florists' flowers; and even the *Rose*, which Mr. Paul has had a turn at with Wakeling's drawings, Mr. Rivers in his *Rose Amateur's Guide*, Mrs. Gore in what she calls *The Book of Roses*, and sundry others, has been years ago reduced to a practice which the most humble reader could understand, though we certainly have not cared to tell where particular species and varieties were supposed to come from. However, we shall give all these lessons over again in as few words as possible.

A *Lover of the Hollyhock* wishes to persuade us that it ought to take the place of the *Dahlia*. He might just as well tell us it ought to drive out the *Chrysanthemum*. The *Hollyhock* is very graceful, very beautiful, very picturesque—nobody will deny that the artist borrows the *Hollyhock* for his pictures, and that it is most showy and effective in garden scenery. But when the *Hollyhock* has done its work, the *Dahlia* is in perfection, and continues to be the rich and varied ornament of a garden until the *Chrysanthemum*, if the season be mild, takes up the supply. We cannot spare the *Dahlia*, though we highly prize the *Hollyhock*.

CAMELLIAS (J. P.).—Two blooms of seedlings are of the wrong character to be useful. The *Althea* flowers are good-for-nothing now, however striking they may have been at one period, when we were glad of novelty, and never looked at quality. If it be true that a nurseryman has made an offer, our advice is to accept it—we would not grow the plants if they were given to us. (*W. D.*)—The flower is inferior to the double-white in every particular. (*J. D. M.*)—Bloom imperfect, but we think it will come much better. It is like the starved bloom of any good variety, not fully developed.

CINERARIAS (M. M.).—Not one of the whole seven is likely to be good for anything, but if they are the first that have bloomed of a large quantity, there may be many good ones. The most common, that is to say, those nearest to the old and worthless sorts, are generally the most early. Throw away all that are no better than these the instant the flowers open. (*W. S. S.*)—The pale blue variety is the only one likely to be useful. We should like to see a truss when the plant is in full bloom.

POLYANTHUS (J. S.).—We cannot depend upon the bloom sent. If we are to judge by the specimens sent, neither of them exhibit a decided character in the ground colour, but early blooms frequently come short in that particular.

G. GLENNY.

(To be continued.)

PROPAGATION OF THE VERBENA.

(Continued from page 293.)

BY CUTTINGS.—There are two seasons for this operation, the spring and the latter end of summer. The

cuttings made in spring are for planting out the same season; and those made at the end of summer, for keeping a store of young plants through the winter. The best place we ever knew for striking verberna cuttings, was in the pit or frame we described in a former number of *THE COTTAGE GARDENER*. That pit consists of a platform supported upon walls, with a frame set upon it. It is heated with stable-litter under the platform, and by linings of the same material. In this frame almost every cutting took root in ten or twelve days. The season for making the first crop of cuttings is about the middle of February. They may be put in till April, so that with diligence and care thousands of young plants may be raised for planting out in May. It will be desirable to place the plants to produce cuttings in a gentle heat, to cause them to make young shoots. These are the best kind of cuttings, and strike the quickest. When they have grown a sufficient length, preparations must be made to put them in. These consist of pots to place them in, soil to fill the pots, and a layer of sand upon the soil. Drain the pots effectually; then place some rough parts of the compost upon the drainage; fill the pots with the compost (consisting of light loam, peat, and leaf-mould, with a free mixture of sand), to within an inch of the rim of the pot, and this inch should be filled up with pure white sand. The pot is then ready for the cuttings. Cut these off the tops of the plants; trim off the lower leaves, and plant them round the edge of the pots pretty thickly; then give a little water to settle the sand, and place them in the frame, which, by that time, ought to be duly heated to receive them.

One point in making cuttings must not be forgotten, and that is, to make them small. They should not be more than two inches long, even rather less would strike sooner. Our amateur friends might think larger cuttings would more quickly make larger plants, but they would be much mistaken. Small cuttings strike root so much more quickly, that they soon overtake the large ones in size, and surpass them in growth.

When they are in the frame, great attention must be paid to shade them from the sun, and to give air every morning, to let out the moisture or steam that will have collected during the night. Should the weather be cold, the frame should have a covering of double mats, to protect them from frost. As soon as roots are formed, let them be potted off into what are called small 60-pots. These are about two-and-a-half inches across; replace them in the frame for a very few days, till they have made fresh roots, then put them either in a greenhouse or a cold frame, well covered up at night as long as cold weather lasts.

The tops of these first-struck plants may be taken off and made use of as cuttings. This will cause the plants to break side-shoots and become bushy. When the plants are fairly established, abundance of air must be given. In mild weather, draw off the lights of the frame; and, in rainy weather, give air by tilting the lights in the centre, that is, place a small garden pot upon the rafter, and let the edge of the light rest upon it; prop up the side of the light the furthest from the point the wind blows from, should any prevail. By this means, you will have plenty of nice bushy plants, either to devote to pot-culture or planting-out in the beds.

The method of putting in cuttings for winter stores, is somewhat similar. The only point to mind, is to have them well-rooted before the cold weather sets in. Where large quantities are required for the flower-garden, the cuttings may be planted in beds, under glass, and suffered to remain there till spring; but the florist, who only cultivates sufficient for exhibition purposes, will not need such immense numbers, yet it is desirable to strike a certain quantity of each good kind,

to preserve the stock, and have bushy plants to put in for pot-culture.

There is another method sometimes practised of propagating this plant, which, for persons who have little room, or do not possess a frame or propagating-house, may be useful, and that is, placing the cuttings in a garden saucer filled with sand, and kept very moist, even to keeping the pan full of water amongst the sand. In a small stove kept at 60°, cuttings so placed strike easily and quickly, but great care must be observed to pot cuttings, so placed, immediately that roots are formed, or the water would soon cause them to rot off.

The winter-storing consists in placing the plants in a cold frame, covering them up securely in frosty weather, giving air on all favourable occasions, and just water enough to keep them alive. Every decayed leaf must be instantly removed, and should any mildew appear, the plants should be dusted with sulphur to keep it down. If the cultivator possesses a greenhouse, a few bushy plants may with advantage be placed on a shelf near the glass. These are sure to pass through the winter unhurt, and will make the very best plants for pot-culture, besides affording early a supply of excellent cuttings. The best way is always to keep a stock, and propagate more than is wanted. There is always room in the flower-border to plant out the overplus, or there is the pleasure of being able to give away a few plants to a neighbour or poor cottager, to ornament their bit of flower-border.

T. APPELEY.

(To be continued.)

ONIONS, THEIR CULTURE AND NEGLECT.

WHETHER it be the tyranny of fashion, or a morbid sense of delicacy, which has all but banished this valuable bulb from the tables of the affluent, we know not, but certainly it does not find its way thither to one-half the extent we are told it does in other countries, where it can be grown, and where a taste for the "useful" has been sufficient to overcome that "fastidious denial," which, we believe, is the only excuse for its more general use here; and as the highest authorities have pronounced the onion not only wholesome and nutritious, but likewise valuable for properties peculiarly its own, we trust the day is not far distant when our fair friends will deign to patronise this neglected vegetable when sent to table, prepared *a la Soyer*; for we rest assured that until we have their consent, we must not eat onions, but must content ourselves with the little of its extract that does find its way to our tables under the disguise of something else. Now, the farm labourer in most of our southern counties is not under such restraints; there he may be seen eating his bread and raw onions with a zest which the epicure in vain seeks for amongst his innumerable dishes, cooked and prepared in accordance with the most improved practice of the day; and though we have no doubt the rustic would willingly exchange his onion and salt for a beef steak or mutton chop, and benefit by the change, yet we should be at a loss to find a better substitute for animal food; and the healthy appearance the rural population have in the districts where this bulb is most grown and used, tells, in undeniable language, that their food agrees with them. But as our duty is simply to attend to the cultivation of this and other productions, we must apologise for this digression, which was solely dictated by a desire to see the onion rendered more useful.

The position of the onion bed is often the same in the garden of the cottager as in that of a prince—"the best that each affords"—and surely no one grudges it that distinction, as nothing at all resembling a substitute can be obtained for this crop, as the cottager knows can be had for most others, of which he is less particular. Every one, also, admires a "good bed" of

onions; it forms no unimportant ornament to a garden, and is one of the first things to which the eyes of visitors are directed,—its quality forms no bad criterion of the merits of the cultivator; and however indifferent that class of visitors may be, who see no beauty in anything but flowers, they generally pay a passing glance to this favourite, and the prominent position it usually occupies is one that is expected to have received all the assistance its owner could render. Suffice it, therefore, to say, that we highly approve of the onion having the first place, as regards quality of soil, good and open aspect, and generous assistance in the way of manure; and as we last week, in our article on the "rotation of crops," pointed out this as a suitable one to follow celery, which likewise is entitled to a distinguished post, we will suppose the ground which the celery has been occupying to have been dug pretty deep as it became cleared, taking care to spread about the dungy portion, which formed the bottom of the trench, and to add some more of a well rotted kind; this, and one or more intervening diggings, in frosty mornings, we suppose to have been done, and our purpose is now to see about sowing this crop. There are few small seeds more really hardy than the onion; and though the climate has quite as much, perhaps more, to do with its success than that of other crops, we believe it is rarely such as to prevent its vegetating; therefore there need be no apprehension of sowing it too soon, provided the ground be in a fit state. We usually sow about the first week in March, but those who have the advantage of an earlier locality, may sow somewhat sooner, the state of the ground being a better criterion than the day of the month. Some soils are in better order in the middle of February than others are a month afterwards; consequently, the former may be sown first, and we need hardly say that having the ground in good trim tells to the advantage of the after crop. But some of our readers will be saying their ground is not likely to be in good order before May, and are they to wait until then? Most certainly not. And as this case is a hard one, we will deal with it first.

It has been our lot to have garden soils of very extreme kinds to deal with, from the stiffest and most retentive loam or clay, to a loose open sand, of which it was common to say, that "wet weather was the cleanest," and certainly a continuance of dry weather rendered the ground in the same condition as the sand banks of a sandy shore—open and loose to an unpleasant degree; in such a soil as this, the moisture of the season, copious watering, or liberal allowances of enriching matter, affords the only prospects of a crop, "and the seed might be sown at Christmas, so far as its welfare is concerned." This however, is, an extreme case, and there are not many such; "but there are a great number of the contrary description, and on these a different course must be pursued. Here is a soil so impervious of water, that rain falling or resting in holes, may be seen to stand there until carried off by evaporation," which our readers well know is not an active agent in winter, so that we cannot, or ought not, to trample on such ground in the course of sowing, "unless it be pretty dry," which it is hardly expected to be in March. In this case, we advise the onions to be sown in beds about three-feet-and-a-half wide, with eighteen-inch alleys between. This allows access to the crop all the season, without treading over the ground occupied by it; whereas in the former case treading might be of service, as rendering the ground less permeable to the drying influence of the atmosphere, and consequently the crop might be sown in the usual way of rows one foot apart. Now, our readers will easily see, that by far the greatest number come between these two extreme cases, and may be met in the medium way, i. e., they may be sown in continuous rows whenever the ground is sufficiently dry to allow the operation to proceed with-

out consolidating it too much by the trampling of the party at work. This the state of the weather sometimes makes it impossible to do, and sowing and digging must go on simultaneously; which can easily be done by beginning at one side, and digging a little way—say a yard, or less—then sow one row, then dig a little more, then sow another row, and so on. Usually, a shallow drill is made by the hoe figured at page 264, and covered in with a rake; by which means not a foot need be set on the dug ground, and whether wet or dry weather follow, it is in that open state best calculated to receive the beneficial influence of the atmosphere; and in the after operations of weeding, thinning, and stirring the soil, the under-stratum is sure to be rendered sufficiently solid to prevent the undue admission of dry heated air at a time when not wanted. Another thing we must not forget to mention—that is, not to rake the ground too fine at this early season; the heavy rains that often follow after, with the drying winds and sunshine, so often cake the ground to an extent that makes germination very difficult, and when it is effected, progress is very slow,—rather, therefore, let the ground be rough and open, after treatment will quickly solidify it.

We prefer sowing in continuous rows in all cases where the ground is not of that stubborn adhesive kind which almost defies our attempts to improve it, but such extreme cases are not common in gardens; nevertheless, we are bound to mention them, and we have been sometimes envious of those who had such soil, to see the fine cauliflowers, lettuce, and other summer crops they produced, when ours were burnt up by the Midsummer's sun.

We need hardly here recommend kinds, since all have their merits; the *Globes* are said to be the mildest, but do not keep well; while the *Strasburg*, which keeps best, seldom gets so large as the *Portugal* and *Brown Spanish*.

Many people grow their own seed, and when that is done in a small way, good bulbs are taken, irrespective of kind, and the result is good seed, which may, with as much propriety as there is usually in such things, be called by the name of the place where grown. Most cottagers grow their own seed, and taking into consideration the crowded state of their bed, the deficiency of manure, and, it may be, the proximity of apple-trees, &c., few cultivators grow better onions than they do. With those who have their seed from nurserymen we would recommend them to obtain some of the *White Portugal*, *Globe*, and *Brown Spanish*, and mix them before sowing. These we intend to be the main crop, and may occupy two-thirds of the ground allotted to this vegetable; then do the same with the *James-Keeping*, *Strasburg*, and *Reading*, and in harvesting they can easily be kept apart, the last named being supposed to be better keepers than the others.

Before concluding, let me call the amateur's attention to his *autumn-sown Onions*, which the mildness of the season has enabled to stand the winter unhurt. These, when standing too thick, may be carefully thinned out, and some of them planted in well-prepared ground, they come into use by the end of June, and are of infinite service in saving the principal summer crop. Where no autumn-sown ones exist, a very good substitute for them is to be had in planting a few small ones, such as are used for pickles; and in autumn, when the crop is sorted over, such as are not fit for that purpose may be laid aside, and are sure to come in useful in early summer; but they never have that compact appearance spring ones attain when well managed, though coming in when they do, they are usually acceptable.

We ought, also, here to mention the *Potato* or *Under-ground Onion*, and the *Tree Onion*. The latter, certainly, only grown as a curiosity, producing a few misshaped small bulbs, or pseudo-bulbs, at the top of a sort of

seed-stem, but which we never could ascertain to be of any use, being too small for kitchen people to "bother with," and too ugly to make pickles. The potato onions, though more useful, are very uncertain, every third or fourth season proving unpropitious to them, so that they often decay wholesale. We have several times in the course of our life had a few given us, which, by careful management, we contrived to increase to a good quantity in two or three years, and then when we expected to reap the benefit of our endeavours, have been mortified to find them rot off by degrees, so that we have ceased to look on them in any other light, than as a very uncertain crop.

The *Silver-skinned Onion* being grown only for pickles, need not be sown before May, and then pretty thickly, on some piece of poor, sandy ground. But the *Blood-red*, which is sometimes sown for particular purposes, ought to be put in with the general spring crop. It is only a bad cropper, and need not be sown extensively. We have not seen this variety in its true character for many years.

KITCHEN-GARDEN SUNDRIES.—*Brussels Sprouts*, *Savoy*, *Curled* and other *Kale*, as well as a sprinkling of *Cabbage* and *Cauliflower*, may now be sown in beds on some snug border, which had been rendered fine by previous digging, and working-in. Dividing the ground into beds, so that the bed and alley occupy five feet, is the usual way, and labelling with a good large stick, so that it stands clear of the plants when fit to draw, is also recommendable. If the soil is of a retentive character, then some finer and more open kind ought to be used at top. We like leaf-mould, were it not that its open nature presents too many retreats for slugs, so that a mixture of it with sharp sand is better than leaf-mould alone. A bed of *Carrots* might also be sown in such a place, but *Lettuce* ought to be sown immediately under the wall, being more delicate it is entitled to more indulgence. If *Broad Beans* were not planted as recommended, before Christmas, under a hand-light, to plant out, let some now be sown in pots as recommended last week for peas, and planted out accordingly. The main crop of *Jerusalem Artichokes* may also be put in, if the ground be favourable for so doing, and fresh beds of *Horse-radish* made. If required, *Sea-kale* may also be planted, while not a day must be lost in planting *Garlic* and *Shallots*, if not done before. Attend carefully to crops in process of forcing, and on wet days look over stores of *Potatoes*, *Carrots*, *Beet*, &c., and make labels and sticks ready to name crops when sown or planted.

J. ROBSON.

HARDY BORDER FLOWERS.

RANUNCULUS ACONITIFOLIUS, var. PLENUS.—This double-flowering variety is one of the prettiest of all our hardy border-flowers that is to be seen in the month of May or early in June, which is its time of flowering. This plant is called the *White Batchelor's Button* by some, and by others the *Fair Maid of France*. Now the single flower of this species would be thought no more of than the common yellow buttercups, as the children call them, in our English meads, only if they were to see this species they would most likely call this the *white* buttercup. We know that this is a very extensive family, and belongs to the natural one of *Crowfoots*; but though the family is so extensive, there are but very few species that are considered worth cultivating in our gardens as ornamental plants. It is true that in this family we have the species called *Asiaticus*, which yields us that endless race of varieties that are so much esteemed by all our famous florists, and which Mr. Appleby and Mr. Beaton so ably remind us of in due season. There are also double varieties of several of our English species, of which our indefatigable editor will, no doubt, make mention in their turn in his excellent papers on English plants, therefore I shall here confine myself to this double variety, as being one of the prettiest of plants. It is a native of the Alps of

Europe, and, as Curtis says, in his "Botanical Magazine," vol. vi., plate 264, "It was generally cultivated in our gardens in the times of *Gerard* and *Parkinson*." He also says, "It delights in moderately moist and rather shady situations." This is true enough, and the richer the soil, the finer the specimen. It was introduced into this country in 1590, and no doubt it was as plentiful in gardens at one time as it is now rare to see it. It forms a large tuft of soft, white-stringy and small fibrous roots, and continues for years very compact in its crown—that is to say, it is not a straggling spreader, and, therefore, may remain in the same spot for many years undisturbed, allowing it to come in for a share of top-dressing at the time when the borders are dressed off; it rises from one-and-a-half to two feet high, forming a neat, branching, forked-stemmed plant, well clothed with deep green leaves, and a profusion of pretty white flowers. It is readily increased by root division, either in autumn, now, or early spring.

TROLLIUS, or *Globe-flower*.—The next plants I shall notice here, as being very ornamental, and belonging to the same natural family of *Crowfoots*, are some of the species of *Trollius*, or *Globe-flower*; and here I think the one which stands in our own English flora, *Trollius Europæus*, is about the best of them. This, in the north, is often called *Locker-Gowls*, or *Gowls* *Globe-flower*. It delights in a good rich loamy soil, in a rather shaded border, and specimens of several years standing flower very profusely as they do with us in May or June, rising from one to one-and-a-half feet high; the flowers are large, of a pale yellow colour.

Trollius Asiaticus is the next best, and puts up its flower-stems a little higher, flowering about the same time; colour, a deep orange. It is a native of Siberia, introduced to this country, 1750. This species has two varieties, called *intermedius* and *hybridus*; either of these two species, or their varieties, are well worthy of a place in every collection of hardy border plants. They are all readily increased by root division at any season, and the best time is early spring or autumn.

CALTHA PALUSTRIS PLENUS.—This is called the *Double Marsh Marigold*. I mention this as it belongs to the same natural family, flowers about the same time, May and beginning of June, delights in a similar situation, and its flowers are so very showy, rising from nine inches to a foot in height; indeed, they are all enjoying themselves in the same border with us, where they are beautiful every season. This *Marsh Marigold* is a double variety of the very common plant in our watery meadows. Another common plant, which is seen by thousands in similar places accompanying it, is called *Lady's Smock*, or *Cardamine pratensis*; this species gives a double variety, which is very beautiful, and makes a sweetly pretty border plant, indeed it is the prettiest species in the whole of this family, and particularly this double variety; it belongs to the natural family of *Crowfoots*; its flowers are of light pink colour, in May, it delights in a rich cool border, and is readily increased by root division at any season of the year. Another species, called *Cardamine trifolia*, the curious trifoliate leaves of which being always green throughout the year, and its delicate white flowers make it a neat little rock or border plant. It is readily increased by root division at any season.

IBERIS SAXATILIS and SEMPERVIRENS.—These two ever green *Candy-tufts* are very desirable hardy border plants, belonging to the natural family of *Crowfoots*. They are both very nearly allied to each other; both white-flowered, rising about six inches in height; both particularly suitable to the rockery, and flourish equally well in the open borders, where they may remain for many years in the same spots undisturbed. Cuttings root readily inserted in a pot, and placed in the common hot-bed during the spring months, and when rooted, they may either be potted off singly into small pots, or pricked out five or six inches apart every way, in a neat little nursery-bed, where they will make nice stocky plants for planting out in the open borders when required; or they may be increased by taking off a slip with a bit of root to it; or, by taking up the whole plant and dividing it, planting again some of the best suitable pieces, so as to form a neat, compact bunch. Cuttings make the prettiest compact bunches, treated as above, to flower the following season. Any common garden soil suits them well. *Saxatilis* is a native of South Europe, and was introduced

into this country in 1730. *Sempervirens* is a native of Candia, and was introduced in 1731. There are several other species of perennial *Candy-tufts*, equally beautiful for either planting on the rockery or open border; indeed the whole family of them, whether of the annual or perennial kinds, are very ornamental plants.

ALYSSUM SAXATILE, or the *Rock Mad-wort*.—This plant belongs to the natural family Crossworts. It is a native of Candia, and was introduced into this country in 1710. This very showy yellow flower makes one of the best of rock plants, where it would stand and flower for years undisturbed in the same spot, and it does equally well in the open, hot, sunny borders, forming a beautiful contrast with the before-mentioned *Candy-tufts*. These two plants alone, spotted about the flower borders, at an equal distance, or in any systematical order, would do much towards making the flower-garden look cheerful and gay in the month of May; but in low, damp situations, two or three years' old plants of this will often go off at once, and if the soil be rich, they the sooner become straggly, and likely to do so. One of the best ways to deal with this very showy plant, is to put in any number of cuttings that may be required in the month of April, when the hotbeds, in which they root very readily, are at work; and when well rooted, prepare a little nursery bed for them, let them be pricked out six or eight inches apart every way in the bed; here they will make the best of stocky bunches by the end of the summer, when they may be lifted with balls of earth into their places to flower the following spring. Any number of these compact bunches might also be potted, to be protected in the cold frame, and brought into the forcing-house in succession, for this plant forces well, looks beautiful in the open borders, and looks equally showy brought forward in the forcing-house.

T. WEAVER.

CLASSES OF THE DAHLIA.

I SEND you a list of the classes in our Dahlia show. In each class we have six winning flowers, that is, 1st, 2nd, 3rd, 4th, 5th, and 6th; to the first three flowers, money prizes are awarded; and to the 4th, 5th, and 6th flowers, the prizes are merely *honorary*. The classes are all distinct, except, as I said in my last, it be the *lilac* and *rose*, which, as colours are now named, it is difficult and, perhaps, only possible at times, to distinguish by taste or fancy. For instance, *Fearless* is called a *lilac*, and that, doubtless, is its real colour; the *Duke of Cambridge* is called a *rose*, and I am sure that sometimes no judge in the world could distinguish the one from the other, judging merely by the colour of the flowers. The *purple* and *crimson* classes are perfectly distinct, though, as flowers are sometimes advertised in catalogues, they are not distinct—*Purple Standard*, and *Standard of Perfection*, forming the model of the *purple*; and *Beeswing*, *Captain Warner*, and *Sir F. Bathurst*, that of the *crimson*. I consider that class showing, with attention to the rules laid down by Mr. Glenny for judging of the quality of flowers, will be the means of classifying flowers much more than they have been, I mean of giving to each flower that colour which it properly possesses; and I am sure that it will soon be the means of distinguishing the *best flowers* in each class, and thereby giving the most substantial proof, both to amateurs and others, which are the flowers most worthy their attention.

I am glad to say that this year we have added the following to the rules of our society:—"That the judges be guided in their decisions by Mr. Glenny's judgment of flowers."

Maroon.	Blush.
Purple.	White.
Lilac purple.	Yellow ground, tipped or edged.
Crimson.	White ground, tipped or edged.
Scarlet.	Dark ground, shaded or tipped.
Rose, or ruby.	
Lilac.	
Buff, or orange.	
Yellow, or sulphur.	

AN AMATEUR.

["An amateur" (whose address we have) has followed up his hints on class showing, by mentioning fourteen colours, or shades of colour, into which he proposes the Dahlia shall be divided. I wish other amateurs and

dealers would take a lesson out of his book, and, in the same way, suggest remedies as well as make complaints. I shall unhesitatingly subscribe to the classes he has particularised, until experience, which showed us objections to the present mode, shall teach us something better. As class showing will become more general, there is one evil which I should like to get rid of; and it may not even now prevail everywhere, although it did last year at the London Floricultural Society. The blooms were not classed by the showers, but put altogether, and the judges had to select from the whole. This is an unwarrantable tax upon their judges. The exhibitors ought to be compelled to place their flowers in the classes in which they intend them to compete. There are some points which may be mentioned to the judges in class showing. A self-colour is indispensable in a scarlet, purple, or any other distinct shade, and the judges ought to place all those which are true selfs above those which have pale sickly centres. Some purples have a dirty white; some reds have a dirty buff or yellow centre; and this state of faded colour is frequently brought about by the artificial means of shading; but, as there is no checking the means of growing, or of dressing by any remedy but the effects, any such deficiency of colour that is palpable should be visited by putting the specimen lower down in consequence. I do not mean to infer that a paler centre is to disqualify, but that it certainly is a blemish, and that it should be placed below one which is a perfect self.

Another word to exhibitors. They should be very careful to place their flowers in the classes to which they belong, because the colour must be a great point. Although certain reds come into the scarlet class, the brighter the colour, that is to say, the nearest to the Scarlet Geranium colour, the better. I feel persuaded that these classes, published in *THE COTTAGE GARDENER*, will be generally adopted.—G. GLENNY.]

TO CORRESPONDENTS.

ROSES (A Subscriber).—The leaves becoming mildewed and dropping off, when grown in pots in a dry room, with a fire every day. Mildew is generally the result of dryness at the roots when the atmosphere is moist, but it will arise when the roots are kept wet and the leaves dry. Unless you wanted flowers very early, the plants would be all the better to have the leaves mostly off at present. Any dry place, where the roots would be moderately moist, not soaked, and kept from much frost, would do quite as well as any other. See what Mr. Fish says about fuchsias to-day. Your roses would do all the better for getting a rest. We presume you grow them in good rich loam in the growing season: they are regular gluttons.

CACTI COVERED WITH SCALE (Senilis).—A bad job, but not hopeless. Dissolve two ounces of soft soap in a quart of water, and steep two ounces of shag tobacco in the same; apply the liquid briskly along the stems with a clean painter's brush, the liquid at 120°, and preventing any from falling on the soil. Set the plants in a shady place for a week, and then bring them out, lay them down on a board or mat, and syringe them as strongly as you can with clear water at 125°. If this does not destroy all, repeat the dose. The plants must be kept cool and shaded until you wash with the clean water, when they may be exposed again to the light. If sulphur and clay is added to the wash it will be more effectual, but then it is bad getting the dressing away from the spiny and prickly sorts. If either of these modes are too troublesome, you must just hunt the scales out with a stiff hair brush.

COCHIN CHINA FOWLS.—W. Lewis asks "Whether the brown or the white Cochin China fowls are the most productive, and whether the latter are so superior to the former as the great difference in price would lead one to expect?" No marked difference in productiveness has yet been observed; the extra price is demanded and obtained for the rarity of the colour, many fanciers being willing to pay a few extra sovereigns to obtain a thing which their neighbours are not possessed of. The same conventional value is attached to White Guinea Fowl, White Pea Fowl, White Elephants, White Rats, and possibly, among Timbuctoo amateurs, to White Negroes.—D.

VINE FORCING (S. H.).—Your vine will, doubtless, vegetate about the usual time, but you can give abundance of air, and persist in a low temperature until the shoots are an inch or so long, when you must advance your thermometer slightly; aim at 40° to 45° before the buds thus advance, then allow 45° to 55° until the "show," when you must advance towards 60° to 65°; thenceforth, let 65° be your lowest, and 85° your highest point.

ROSES (C.).—Your selection is not at all good. The *Banksians* will do no good on the arches, unless you are in the south of Ireland, in a warm sheltered place, but they will grow fast enough no doubt. *Maria Leonida* is not strong enough to cover much space. *Princess Mecklenberg* is not a climbing rose, at least we never heard of it as such. *De Lile* is a large, ragged, lightish flower, belonging to the Boursaults; its chief merit is its hardiness, and growing very strong and fast. *Purple Boursault* is hardly worth planting, if you mean the nearly single one.

The *Ayrshire Queen* is the best you have for the place, and it is only a second rate, and not quite an Ayrshire.

WALLFLOWERS (L. C.).—To have young Wallflowers in bloom in May, all that is necessary is to sow seeds every year any time between the middle of April and the middle of June; the first period brings in stronger and earlier plants. The *Delaware Cabbage* should be sown in March, and again in April. The treatment same as any of the strong growing kinds.

BUDDING ROSES (S.).—Authorities differ much on the subject. Theoretically considered, the whole of the wood, under the bud or shield, ought to be taken out, and many budders do so, to the present day, with success; but for one who does so, a hundred follow the opposite course, and leave a *thin slice* under the bud. We ourselves bud a great many, but for the last twenty years we never extracted the wood from any bud whatever. We therefore put the question thus:—An expert budder may, or may not, take out the wood with equal success, but as budding with the wood is less likely to cause injury to the bud, a young beginner had better adopt this mode, keeping always in mind that the slice of wood left must be very thin. The *Manetti Rose* is a hybrid China, and only used as a stock.

FLOWER BEDS (J. C. D.).—Nothing that you "can sow in a hot-bed, between this and the 1st of March," will answer to make up flower-beds of one colour, "to flower this season," except a few annuals. Such annuals are *Tagetes tenuifolia*, *Sanvitalia procumbens*, the different sorts of small *Lobelia*, *Chin-a-atera*, and such like. The best of the hardy annuals, sown in March, would only last about six weeks from the end of May or Midsummer. The way to keep dwarf *Fuchsias* free from too many leaves is to give them poorer soil, but the greater number of new fuchsias are not good subjects for beds.

BANKSIAN ROSES (A Young Amateur).—You ask why your white and yellow Banksian roses do not flower, and answer the question yourself, by saying, "they grow very luxuriantly" on a good aspect. We have said many times that all *luxuriant* shoots of these Banksians ought to be stopped as soon as they were six inches long, from the end of May to the end of August, and all such that appeared later should be cut out altogether. You had also better cut a few of the strongest roots two feet from the stem next March. *Offsets of Hyacinths* in glasses do no harm: let them take their chance.

ALSTROMERIAS AND OTHER SEEDS (Carick Carol).—There is not the least difficulty or danger in getting up plants from seeds of the Chilean or Van Hout's *Alstromerias*, *Anomatheca cruenta*, and *Tigridia Paronia*. The same treatment will do for the three. A cucumber-bed would be the best place for them till they sprouted an inch or two above the soil, but a bed with 50° or 60° will do, and they may be sown immediately, or at any time before the end of March. Any light soil, as one-half peat and one-half sandy loam, will do for the seeds. They should be sown thinly, in pots not more than six inches in diameter, so that the little plants need not be disturbed, but be planted out on a south warm border, with the balls entire, about the end of May. A greenhouse or close cold pit will do for them after they are well up out of the ground. The *Anomatheca* and *Tigridia* will flower next September, but the *Alstromerias* not till next season, and the end of October is the natural time for sowing them, but the spring will do, and the varieties called *Van Hout's*, are the readiest to vegetate, and the most easily got. *Pentstemon*, scarlet, blue and white, are good border plants, which come easily from seeds also, *Phloxes* of sorts. *Campanulus* also from seeds. *Potentillas* are better in plants, as are also *Coreopsis lanceolata*. The different *Spiraeas*, lately mentioned by Mr. Weaver, would suit you well; indeed, all the plants in his lists are such as you enquire about.

ROSES (Menemryanthemum).—What have you been thinking about all this time, while we have worn our pen to a stump writing and insisting on pot roses for forcing being pruned in October? It is enough to make one despair even to think how some people pass through the gardening world without attention. Your roses are now in pots, plunged in the flower beds, "not pruned," and you "wish to have them early in bloom." Your wish will not be gratified this year, at any rate, unless the middle or end of April is your early period. Prune them as soon as you read this, and put them into a cold pit that day week; three weeks after that, remove them to a warmer place, with plenty of air, and night heat not more than 50°, till you can perceive flower buds, then increase the heat, but not much, otherwise you will run the chance of hurting your plants very much indeed. You have the very best sorts, and you ought to treat them well, so as to be a credit to the whole parish. *Geant des Batailles* is a hybrid perpetual.

CAMELLIA STOCKS (Ibid).—Have nothing to do with raising your own camellia stocks. If you determine to do so, wait till next August, then select nice healthy cuttings of next May's growth, from the single variety, put them in a close cold pit, and they will be ready to pot off this time next year, and the strongest of them will do to graft on this time two years, and some perhaps not till the year following. In large quantities they are advertised at sixpence a piece, ready to work.

COCHIN CHINA FOWLS (G. F. D.).—We have forwarded your note to Mr. Funchard. (*An Original Subscriber*).—Perhaps H. W. Heaton, Esq., Honorary Secretary of the Yorkshire Poultry Society, Copley Wood, Halifax, can give you the information you need.

POULTRY.—D. D. Dalston, wishes to know where he can obtain fowls of the pure *Gold* and *Silver Poland* and *Black Poland* breeds.

VINE CULTURE (W. R. W. S.).—All the directions in *THE COTTAGE GARDENER* are just as applicable in Australia as in England. The only difference is, that the season of rest there is our season of growth. Wine-making is the same process all over the world; and we know of no separate work upon the manufacture of the Rhine wines.

BOILER FOR HEATING TANK.—J. C. who, at p. 265, asks for a boiler holding four quarts, may hear of one by writing to J. G., care of Mr. J. Pyser, confectioner, Paddington, Liverpool.

FLOWER BEDS (E. S. F.).—Without a greenhouse or pit it is up-hill work to plant such nice beds as you are. The *Blue Anagallis* and the *Eurothera prostrata* will do very well, and match as you propose. We had them so last year, but we prefer the *Lobelia erinus grandiflora* to the *Anagallis*. If, however, you are sure your ground suits the *Anagallis*, use it; and its habit is a better match for the *Eurothera*. We have all along refused to recommend dealers. Hardy annuals and biennials, *Phloxes*, *Pentstemons*, *Potentillas*, or what are called mixed border plants,

are the next best kinds after frame and greenhouse bedders; and Mr. Weaver promises to continue his descriptive lists of them.

ROOKS.—"In answer to a correspondent who wishes to have a rookery, he must keep his grounds very quiet—no guns should be let off, nor should the rooks be ever scared away. I had a clump of elm trees not far from my house in Gloucestershire (not my present residence) where I preserved game; the rooks, being discriminating birds, found out that everything was quiet, and that no trespassing was allowed, so they took possession twenty years ago, and have built on the same trees ever since. In the Zoologist it is said—"I heard of one gentleman who had a magpie's nest in a clump of trees, and slyly changed the eggs for those of rooks, while the old magpies were away. The rooks were hatched and brought up, and next year commenced a colony."—H. W. Newman, *New House, Stroud*.

UTILITY OF PIGEONS (Ibid).—"I like the observations on the domestic pigeon. In Berkshire, many intelligent farmers say that the pigeon is a devourer of the seed of that pestilential flower the '*Charlock*,' which infects the corn-fields, and gives such a beautiful yellow blossom; and where pigeons abound this hated weed is less seen. Some farmers keep these birds on purpose to keep this weed down."

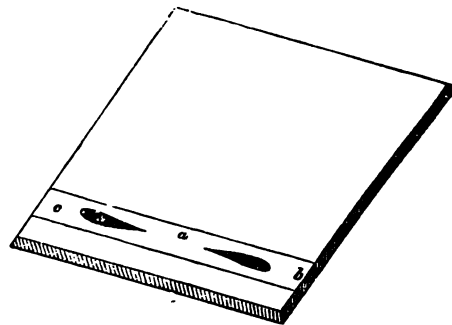
CUPHEA PLATYCENTRA SOIL (Cuphea).—The soil for this—sandy loam, one-half; well-decayed stable dung, one-quarter; leaf-mould, one quarter—thoroughly mixed.

GREENHOUSE LEGALLY REMOVABLE (Ibid).—Your greenhouse, which "can be keyed and un-keyed, like a bedstead," we think is legally removable. Anything attached to the freehold, as the brick foundation, or beams let into a wall, are not legally removable.

RHUBARB ROOTS (M. R.).—Those grown in our gardens have the same medicinal qualities, but much weaker, as that sold by druggists. The roots may be taken up as soon as the leaves begin to fade in early autumn. They are not worth the extreme care and trouble required to dry them.

RENDERING EGGS UNPRODUCTIVE.—We are informed that Mr. Funchard renders his *Cochin China* fowls' eggs unproductive by puncturing them with a small needle.

TOP-BOARD OF TAYLOR'S HIVE.—In compliance with the wish of several correspondents, we give a drawing of this. The floor-boards correspond with it in every way, with the exception of the sunken groove for the sliders, and in being three-eighths of an inch thick, whereas the top-board is half-inch.



a, groove to receive zinc sliders; the openings, b and c, are 14-inch wide at the broadest part.

LISTS OF FUCHSIAS AND GERANIUMS (G. J. J.).—*Fuchsias*: No plus ultra, Bank's Diadem, Elizabeth, Champion, One-in-the-ring, Hebe. *Geraniums* (cheap ones): Duke of Cornwall, Silk Mercer, Ajax, Christabel, Forget-me-not, and Ocelata. *New and best*: Magaeat, Optima, Ariadne, Enchantress, Purple Standard, and Rubens.

CAMELLIAS (F. W. T.).—You have mistaken the remark in *THE COTTAGE GARDENER* about resting Camellias. The rest should be when the flowering-buds for the following year are formed. Your Camellias, you say, are starting into growth now; all you can do is to keep as low a temperature as possible, giving water in proportion only just sufficient to keep on the bloom-buds. When the young shoots have attained a degree of maturity, you can then use as many of them as you please for grafting, having previously given the stocks some heat to set them growing.

ROOKS.—E. S. says, "In answer to W. J. E.'s inquiries respecting rooks, I have known them to be enticed into building by fixing old straw bee-hives in the required position, which they took to, supposing them to be former nests. I should imagine they should be kept as quiet as possible till they have thoroughly established themselves."

PEAT CHARCOAL (W. W. Lewisham).—You can obtain peat charcoal at the Metropolitan Sewage Company, Stanley Street, Fulham. Messrs. Henderson, Pine Apple-place, Edgeware-road, possess for sale the *Alstromeria oculata*.

DUTCH HAMBURGH GRAPE (J. W.).—Where can this vine be purchased?

CARNATIONS (Violette).—You may obtain a list of Carnations of any of the florists who advertise in *THE COTTAGE GARDENER*. Your question why your *Anemones* come with double crowns is rather puzzling, when we do not know the way you cultivate them. Is your soil very highly manured? We should think it is, and the remedy will be to plant them in poorer soil next season.

NAMES OF PLANTS (P. S.).—We think the diminutive specimen sent is *Parley Piert*, *Alchemilla arvensis*. We know of no mode of destroying it without injuring the grass. (*Queen Mab*).—Yours is a *Cresselia*, and we think *C. thyrsiflorus*. Send us a specimen when in bloom. We cannot tell you where to get *Nerine Fortherrigilli*.

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WEEKLY CALENDAR.

M D	W D	FEBRUARY 19—25, 1852.	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
19	Th		29.911—29.831	54—42	S.W.	—	10 a. 7	10 a. 5	7 20	29	14 10	50
20	F		29.768—29.714	53—35	S.W.	26	8	21	sets.	●	14 5	51
21	S	Sun's declinat., 10° 45' s.	29.911—29.810	48—27	E.	—	6	23	6 a. 52	1	13 58	52
22	Sun	SHROVE SUNDAY.	29.907—29.937	50—29	E.	—	4	24	7 58	2	13 51	53
23	M	Woodlouse seen.	29.894—29.793	49—31	S.E.	—	3	26	9 4	3	13 43	54
24	Tu	SHROVE TUESDAY.	29.766—29.760	53—31	S.	02	vi	28	10 8	4	13 35	55
25	W	LENT B. ASH WED. ST. MATTHEW.	29.947—29.816	53—34	E.	—	57	30	11 14	5	13 25	56

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 46.2° and 33.6° respectively. The greatest heat, 64°, occurred on the 25th in 1846; and the lowest cold, 16° on the 19th in 1845. During the period 57 days were fine, and on 88 rain fell.

BRITISH WILD FLOWERS.

CROWFOOTS—RANUNCULACEÆ.

RANUNCULUS.

(Continued from page 285.)

SECTION WITH LEAVES CUT OR LOBED.

RANUNCULUS AURICOMUS: Goldilocks; Wood or Golden-haired Crowfoot.

Description.—It is a perennial. *Root* fibrous. *Stem* about a foot high, erect, branched, leafy, round, the upper part often slightly downy. *Leaves* seldom quite smooth; often finely downy; root-leaves on long stalks, rounded or kidney-shaped, scalloped, some of them three-lobed, or five-lobed, cut; those on the stem stalkless, in deeper or narrower segments; uppermost in three or more narrow, quite entire, lobes. *Flowers* terminal, on downy stalks, solitary, of a bright golden yellow, of which the pale, hairy, never-bent-back *calyx* often partakes. Sometimes the *Calyx* is enlarged and coloured, assuming the aspect of *petals*, which in that case are wanting. *Nectary* an open pore or hole at the bottom of each petal.

Places where found.—Not uncommon in dry woods and hedges, but very rarely in marshy places.

Time of flowering.—April, May.

History.—This has none of the usual acrid qualities of the Crowfoots, and for this reason it has been sometimes called *R. dulcis*, or Sweet Wood Crowfoot.

RANUNCULUS SCLELERATUS: Water Crowfoot; Celery-leaved Crowfoot.

Description.—This is an annual. *Root* fibrous. *Herb* very acrid, juicy, various in luxuriance, from six inches to two feet high, of a pale shining green, very smooth, except occasionally the *flower-stalks* and upper part of the stem, which sometimes have depressed hairs. *Stem* thick, round, hollow, repeatedly branched, leafy. *Lower leaves* stalked, rounded, bluntly lobed and cut; *upper leaves* stalkless, with deeper and narrower segments; *uppermost leaves* of all, accompanying the flowers, spear-head-shaped, undivided. *Flowers* small, pale yellow, numerous, on solitary stalks, either terminal, axillary, or opposite to the leaves. *Calyx* hairy, bent back. *Petals* circular. *Nectary* somewhat tubular. *Fruit* egg-shaped, blunt, various in length, composed of numerous small seeds.

Places where found.—Common in shallow watery places.

Time of flowering.—June to August.

History.—It is one of the most acrid and poisonous of our native plants. The herb bruised and applied to the skin soon raises a blister, and has been employed for the purpose instead of Cantharides or Spanish flies, but the wound it makes is difficult to heal. This property is said to be taken advantage of by vagrants to excite compassion. When chewed, this herb inflames the tongue, and if swallowed, produces violent vomiting, and even more fatal consequences. Goats eat it. Cows, horses, and sheep, refuse it, but the latter having accidentally swallowed it, are believed to have died in consequence. It is the *Round-leaved Water Crowfoot* of some of our early herbalists. Water dis-

tilled from it is intensely acrimonious, and when cold it deposits crystals which are dissolvable with difficulty, and are inflammable. Yet boiling is said entirely to destroy the acridity of the herb, and that after boiling the Wallachian shepherds eat it.

RANUNCULUS ALPESTRIS: Alpine White Crowfoot.



Description.—This is a perennial. *Root* with many long fibres. *Herb* very smooth in every part. *Stem* from two to five inches high, erect, almost invariably simple and single-flowered, naked, except one or two, and sometimes three, narrow, bluntish, upright, entire *leaves* towards the middle. *Root leaves* several, on channelled stalks, roundish-heart-shaped, or kidney-shaped, more or less deeply divided into three principal unequal lobes, which are again lobed and cut, elegantly veined. *Flower*, large, erect, of a brilliant white. *Petals*, reversed heart-shaped. *Calyx*, bent back, smooth, pale, bordered with white.

Place where found.—It has only been found by the sides of some small streams, and other moist places, about two or three rocks on the mountains of Clova, in Angus-shire; even there it seldom flowers.

Time of flowering.—May.

History.—It was discovered comparatively recently by Mr. Don, and the reason for this, he suggests, may be, that its leaves bear so great a resemblance to those of some of its commoner kindred that it may have been overlooked. Haller states that it is extremely acrid, and capable of blistering, yet the Swiss hunters chew it as a restorative, and to prevent giddiness.—(Smith. *Withering*. Don. *Martyn*. Ray.)

As we have observed in another publication, the gooseberry, though now especially a British fruit, is not mentioned as an object of cultivation here until the middle of the 16th century. Tussor, in his "Five

Hundred Points of Good Husbandry," published during 1557, mentions "gooseberries" among our then garden fruits. Lyte, in 1578, says, "it is planted commonly almost along the borders of every garden." The green

gooseberry he calls *Uva crispa*; and the *Uva ursi* of Galen, and *Ribes*, are names he applies to "the red-beyond-sea gooseberry;" but this is evidently our red currant, as his black gooseberry is our black currant. Gerarde, in his "Herball," published 1597, says it is called *Fea-berry* in Cheshire. It has the same name in Lancashire and Yorkshire. This, in Norfolk, is abbreviated into *Feabes*, or, as the provincials pronounce it, *Fapes*. Gerarde says there were then "divers sorts, some greater, others less, some round, others long, and some of a red colour, growing in our London gardens and elsewhere in great abundance."

In the "Paradisiſus" of Parkinson, published in 1629, are described five varieties of gooseberries or feaberries: three reds, differing only in size; one blue or purple, like the damson; and one green and hairy, of which "the seed hath produced bushes bearing berries having few or no hairs upon them."

Johnson, in his edition of Gerarde (1636), has "the long green, the great yellowish, the blue, the great round red, the long red, and the prickly gooseberry." Ray has no English name but the pearl gooseberry. Rea mentions three sorts of the red, the blue, the yellow of several sorts, the White Holland, and the green, in his "Flora, Ceres, and Pomona," published during 1665. Miller only says, there were in his time (1724) several varieties obtained from seeds, most of them named from the persons who raised them, as Lamb's, Hunt's, Edwards's gooseberry, &c.; but new ones being continually obtained, he considered it needless to enumerate them.—(*Martyn's Miller's Diet.*) In 1752 the attention of gardeners to raising improved varieties first becomes apparent; for Switzer, in his "Practical Fruit Gardener," then published, says, "the best sorts are the large white Dutch, the large amber, the early red and green, both hairy, Mr. Lowe's early green and walnut gooseberries, with some other very extraordinary kinds of his raising at Battersea, not yet named." Though this shows a somewhat awakened attention, yet the cultivation was still neglected; for Switzer, instead of pruning with the knife, recommends the bushes to be "clipt a little before midsummer." Hitt, in his "Treatise on Fruit Trees," is the first author who recommends a careful cultivation of this fruit "of the meaner sort," and gives directions for its pruning and general treatment.

Mr. Loudon truly observes, that the gooseberry is cultivated in greater perfection in Lancashire than in any other part of Britain; and next to Lancashire, the climate and treatment of the Lothians seem to suit this fruit. In Spain and Italy the fruit is scarcely known. In France it is neglected, and little esteemed. In some parts of Germany and Holland the moderate temperature and humidity of climate seems to suit the fruit; but in no country is its size and beauty to be compared with that produced in Lancashire, or from the Lancashire varieties cultivated with care in the more temperate and humid districts of Britain. Dr. Neill observes, that when foreigners witness our Lancashire gooseberries, they are ready to consider them as forming quite a

different kind of fruit. Happily this wholesome and useful berry is to be found in almost every cottage garden in Britain; and it ought to be considered a part of every gardener's duty to encourage the introduction of its most useful varieties in these humble inclosures. In Lancashire, and some parts of the adjoining counties, almost every cottager who has a garden cultivates the gooseberry with a view to prizes given at what are called "gooseberry prize meetings;" of these there is annually published an account, with the names and weight of the successful sorts, in what is called *The Gooseberry Grower's Register*. That for 1851 is now before us, and its contents will surprise any one ignorant of the zeal with which this fruit is cultivated by the artizans of our northern counties—Lancashire, Cheshire, and Yorkshire. It is the fiftieth year of its publication, and contains reports of one-hundred-and-sixty-eight exhibitions where prizes were awarded to superior gooseberries. The heaviest red gooseberry grown during 1851 was London. Mr. James Elliott, of Ounsdale, was the grower, and it weighed 27 dwts., 12 grs.; or one ounce, seven pennyweights, twelve grains.

The heaviest yellow gooseberry, the same year, was *Catherina*, grown by Mr. Matthew Arundale, of Set Lun, near Hollinwood. It weighed 27 dwts., 4 grains.

The heaviest green gooseberry was *Invincible*, grown by Mr. John Parry, of Kelsall, and weighing 25 dwts., 7 grs.

The heaviest white gooseberry was *Jenny Lind*, and this, grown by Mr. John Swift, of Ormskirk, weighed 26 dwts., 17 grs.

If we were to select the six varieties of each colour as the best, because they won the most prizes, they would stand thus:—*Reds*.—London, Companion, Conquering Hero, Slaughterman, Wonderful, and Lion's Provider. *Yellows*.—*Catherina*, Leader, Pilot, Drill, Railway, and Gunner. *Greens*.—Thumper, Turn-out, Queen Victoria, General, Gretna Green, and Overall. *Whites*.—Freedom, Queen of Trumps, Snowdrop, Lady Leicester, Eagle, and Snow Ball.

We have some remarks to offer upon these shows, and others in connexion with them, but must defer them until next week.

GOSSIP.

We are glad to find that the importance of promoting the improved breeding of poultry is rapidly gaining attention. An exhibition of poultry is about to be established at *Colchester*; and prizes for superior poultry are about to be offered by the *Liverpool and Manchester Agricultural Society*.

At the annual general meeting of the *South Devon Botanical and Horticultural Society*, held at Plymouth on the 3rd instant, we observe they are strenuously preparing for this year's campaign.

It has, although but one year old, more than 100 subscribers. Mr. Rendle, of the Union Road Nurseries, gave prizes last year for the best specimens of honey, and he purposes giving larger rewards this year. Those prizes induced some very satisfactory exhibitions from the *Kingsbridge Bee Society*. Will some of our readers favour us with

the rules and particulars relative to this Bee Society? Prizes, we observe, are also to be offered for wax models of flowers and fruits.

We have before us the two first numbers of *The Scottish Gardener*, a very excellent and very cheap periodical. We have several of its essays, sound and practical, marked for extract; but at present we have only space to say, in the words of its prospectus, it will "prove of the greatest service to the gardening interests of Scotland." This is not the only horticultural monthly we have to announce; for we see that another, the *Garden Record*, under the editorship of Mr. Neville, is about to appear.

An enquiry is being instituted by the National Society into the truth of the accusation against their secretary, *Mr. Edwards*, of showing flowers not his own. This enquiry will be good-for-nothing if the witnesses are to be called by one side only. The active members of the society went down to vote for the accused when put up for a member of another society; and if the committee is composed of those members, and if they do not call for the members of the Amateur Tulip Society, who were positive witnesses before, the enquiry will, we fear, be worse than unsatisfactory.

As everybody is *propagating Dahlias*, a few words on the various modes of doing that part of the business of cultivation may not be thrown away upon amateurs.

The dry roots are now, or will be by-and-by, showing their eyes, whether in heat or otherwise; and those who do not want more than two or three plants, have only to take away all decayed portions of the tuber, and let them remain in some situation where neither frost nor damp nor heat can injure them, merely taking care that when they shoot there shall be nothing in the way to prevent their growing up fairly. Unless a root is inclined to shrivel and dry up, a shoot may get four or five inches long without hurting it as a future plant. If many more than are wanted come out, let the extra ones be rubbed off, leaving only such as can be detached with a piece of the tuber, because only one main shoot can be well used on a plant. When we come much forwarder, part the tuber into two or three, with a good portion to each shoot. Trim it so as to go into a pot, if it is too soon to turn out in the ground, but if this does not happen till the middle of May plant them out at once. Some, however, will grow early, and these should be potted and kept in the cool until planting time: this is, for amateurs, by far the least troublesome mode, because there needs no hotbed, no artificial heat, indeed nothing but a place in the dwelling-house out of the reach of frost. Some persons who have not even this plant them four inches below the surface, directly they show their eyes, and if they come up before the middle of May earth them up or cover them with pots to keep off the frost.

The next mode to be mentioned is breaking off the shoots when two inches high, and potting them in small pots, but they ought in this case to have bottom heat to strike them, but a root will not make so many this way as it will by allowing the shoots to be more matured, and cut off at a joint. Some amateurs plant the tubers just as they are taken up, in fact as they would potatoes, and then they have a bush of many shoots, an immense number of flowers, but all very small.

RETARDATION, BLOSSOM-PROTECTION, &c.

THE accession of new readers to *THE COTTAGE GARDENER*, the apathy of some to what appears a thrice-told tale, and the danger of forgetting maxims of high import amid conflicting opinions, with the constant turmoil of every-day matters, of necessity causes a re-

petition somewhat annoying to persons more mindful of the omissions or errors of by-gone days in horticultural affairs. What said the poet:—

"Truths would you teach, and save a sinking land—
All hear, none aid you, and few understand."

And what is true this way in the moral, social, and political world, is equally so in the world of gardening.

By the time these remarks have appeared in print, the middle of February will be past, and the buds of many fruits will begin to manifest an impatience of their winter bondage. The pros and cons, both for and against protecting, have long occupied the mind of fruit cultivators; and it is, indeed, strange to reflect what a mass of conflicting evidence would appear, were it possible to place the whole in juxta-position. When, however, it is fully considered that, up to the present hour, perhaps, not a tithe of our fruit growers have duly appreciated the importance of "*ripening the wood*," a serious drawback will appear against the parties who have been so loud in their condemnation of covering. Their bad crops formerly drove them to covering, and the continuance of fitful crops emboldens them to press a heavy charge against covering. As long as we hear tell of men sweeping away green peach-leaves with a besom, to ripen the wood, so long shall we continue to press the charge of a non-appreciation of the first principles of fruit-culture—ripening the wood. Sweeping off leaves in October, indeed! If the wood is not thoroughly ripened through the agency of the leaves previous to that period, it will by no means be afterwards; and the birch twigs will be far better employed in making besoms.

And what is observed here as to peach and nectarine culture, applies, less or more, to most of our fruits, more especially those from warmer climes. To be sure, some of our very commonest apples and pears will bear and thrive for many years in the most untoward situations, but we shall look in vain for first-rate winter dessert fruit in such situations; and, moreover, such trees, in general, show unmistakable signs of a very different parentage from our modern dessert kinds.

Again, such trees are seldom pampered as those in the deep and rich soils of our kitchen-gardens, or their days would be shortened. As to parentage, let any one plant the celebrated Newtown pippin of America in the cold portion of an ordinary orchard, beside a common apple, say a Keswick codling, and he will find that even a south wall is insufficient, and that it will not attain perfection side by side with a Moorpark apricot, or Royal George peach. It must also be remembered that much of our modern dessert fruit is for late or winter purposes, and that, somehow, such kinds are naturally late in perfecting their wood as well as fruit; hence the necessity for taking all possible means to promote the ripening of the wood. So much, then, for the position of the covering question, to which we should have scarcely adverted in this place, but that we would not have the readers of *THE COTTAGE GARDENER* alarmed at a mere bugbear; they may rest assured that the protection question is daily growing in favour with men of high standing in our profession.

It must be borne in mind that covering to *retard*, and covering to *protect*, blossoms, are two distinct processes, although the very same material be used, and this leads to a consideration of the material proper. We do hope that our readers will not allow themselves to hamper the question with the fear of a little expense in the material, for it can be but trifling, choose what we will amongst ordinary fabrics. In these days of double glass walls, costing some thirty shillings at least per lineal yard, surely eighteen pence may be expended on the same length for a covering. Everybody knows that the branches, or rather spray, of evergreen shrubs or trees have been extensively used for this purpose, especially

those of the spruce; the fronds of fern, too, have been in use for many years; about London, and the southern portions of this kingdom, what is termed "bunting" has been most in vogue for 40 years; here, in the north-west, a kind of canvass, resembling what is known as cheese cloth, is very much in use, this is simply a coarse unbleached canvass, somewhat open in the mesh, sufficiently so to admit constantly flickering rays of solar light. Now we know of nothing better, in the present position of our manufactures, than the latter article, which we have used almost constantly during the last 22 years. Whatever material is used, we consider it absolutely essential that the meshes be not too close; it is really necessary that some solar light, and, what is of still more importance, a free circulation of air, be permitted to pass through its texture. Without this, the buds become coddled and "drawn;" and this, indeed, which constitutes the abuse of covering, is the very thing, doubtless, which has led to so much prejudice against covering. The fact is, an article perfectly eligible, and as economical as the state of the times will warrant us to expect, has yet to be produced; and if some ingenious tradesman would turn his attention to the subject, we have no doubt that an advance would be made, and the party well repaid by an extensive sale.

But to return; we alluded to the abuse of the bud by "drawing," &c. Now, where coverings are applied in a timely way, on the retarding principle alone, say in the second week of January, the bud will be found so backward, that there will be little occasion for the exercise of caution as to "drawing" the bud, until the early part of March, when the advanced temperature, alone, of the period, will, perforce, compel the buds to unfold; and we are prepared to admit, nay to suggest, that a daily course of airing becomes absolutely necessary. Now, where spruce or other branches are used, and they are not stuck in too thickly, the buds will enjoy the flickering solar rays, together with a thorough circulation of air. This latter point is an advantage that boughs actually possess over canvass; they are self-acting, but canvass must be waited on when the bud advances. There is a greater accumulation of heat beneath the canvass than some people are aware of; for on many sunny days in March, and even April, there is a lively breeze, and if the canvass is neglected, the trees are deprived of this necessary airing, or, in other words, heat dispersion, for this is one prime character of the breeze.

We foresee that some who read these arguments will feel surprised at our talking of heat-dispersion; they will be ready to exclaim, what do people build walls for? what do they cover for? what does the new suggestion of double glass walls mean? As for the latter, we leave them to their fate and a discerning public; but we do know that high temperatures, with a partial deprivation of light, will not answer; this tends to the evil termed "drawing," and the latter is only a technical way of expressing vegetable weakness, leading, in fruit trees, to abortion and barrenness.

Let all those then who would fully understand this ticklish question, nicely distinguish amongst these apparently conflicting matters; when once mastered, they will look back astonished at the narrowness and simplicity of a question which at first appeared so broad and intricate.

It may now be observed, that the season is too far advanced to offer advice of an efficient character as to retarding practice; this was offered, if we remember right, last year. The retarding principle at this period gradually merges into protective proceedings; in fact, until the blossom is fairly expanded the two have to go hand-in-hand; at least, after the hitherto latent bud has burst its wintry bonds. When, however, the blossom becomes developed, what the gardener terms "setting," that is to say, the impregnation of the blossom ac-

cording to nature's ordination, must have every attention; nature's mandates are here of an imperious character, and no collateral shift or expedient may be allowed to fetter the great end in view.

A free circulation of air during the daily period of solar light, a free admission of the latter, dryness in the blossom, as to the exclusion of rains or storms, and a careful staying off the baneful influences of frost, are thenceforward the maxims on which to proceed. And now, be the covering what it may, attention should be given day and night to secure these points. The stigma, or female portion of the flower, is peculiarly susceptible of injury, and until the corolla or blossom-leaves are cast, it is a most critical period.

The next in importance is when the infant fruit is throwing aside its swaddling clothes, heedless of those trickish freaks of a shyly departing winter; and here we cannot forbear quoting an old proverb—Spanish we believe—be that as it may, the point is good, thus:—

"Mishap comes up in spur and boot
And always slinks away on foot."

And thus very commonly comes Mr. John Frost in early autumn.

We must now leave the subject for a little while, promising a few pertinent remarks before the dangerous period is entirely past.

R. ERRINGTON.

BEDDING GERANIUMS.

(Continued from page 305.)

For the last few years some of our nurserymen, and a few private growers, have been collecting as many of the wild species of Geraniums as could be had in the botanic gardens and in collections of botanical curiosities, and this desire for old, cast-off plants, was soon aided by the London Horticultural Society, when they began to offer prizes for small collections of the wildings. But after seeing all that have been exhibited, and the collections at the Kew Gardens, and in the garden of the Horticultural Society, and also in some of the nurseries, I cannot say how many species are procurable now, because, among all the collections that I have seen, there was a mixture of crosses which passed as genuine species. I have even known the Horticultural Society deceived by exhibitors passing off crosses in their collections of wild species, but, of course, not intentionally, but for want of knowing better. I cannot now, however, bring the names of these crosses to mind, except *flexuosum*, of which I have a memorandum, made in 1848. In almost every private collection that I have examined, *ardens*, and *ardens major*, *flexuosum*, *ignescens*, and *quinquevulnerum* were called wild species, but none of them are so in reality, they are crosses, of which figures and full descriptions are given in "Sweet's Geraniaceæ," a six guinea work, which is now very scarce. No one has taken up the geraniums scientifically since Mr. Sweet died, hence our present confusion when we want to learn the best kinds, and select from them for the purpose of crossing, with all those bedders that are known to yield seed. I shall here offer the best selection of breeders that I have been able to make, and I have been at it since the summer of 1848, and such of our readers as wish to procure them must take their chance of what they can find in the nurseries under the names and descriptions I subjoin. I saw a good many of the sorts with Mr. Appleby, and all true to the names except *sanguineum*, and that I could never find true in any nursery, yet it is the second best on my list. But I shall begin with

Ardens and *Ardens major*, both crosses according to Sweet, the best authority. They are tuberous rooted, with large-lobed leaves, and jointed flower-stalks, and the flowers are nearly black, with red markings. *Major*

is the strongest grower and the best one to seed. They seed easier if grown in peat, and kept as cool as possible while under the operation; but the best plan would be to use their pollen with the *Yelmanianum* breed, and with all those between that breed and the new fancies. The habit of flowering on long footstalks, and the length of time the flowering season would extend, are the only good qualities that can be expected from *Ardens*, except, perhaps, helping us to get striped flowers.

Bipinnatifidu.—The Horticultural Society distributed the *rasp-leaf* geranium by this name, but Sweet has a beautiful cross belonging to the Oak Leaved section under the name, and he gives *quinquevulnerum* and *triste* as its parents; the flowers are a striped lilac. I have seen this plant in flower, and I doubt its parentage; I also think it is bad to seed, but I have not tried it much, neither do I know which is the true name, that by the Society or Sweet's name, but the striped flowering plant I mean is Sweet's, and is one of the most promising we have for getting striped flowers like those of *Sidonias*.

Sapeflorens.—This is highly to be recommended for getting deep, reddish-pink crosses from, it passes for a wild species with most growers, but it is a cross between *reniforme* and *echinatum*, the latter being the mother plant. I have seen it confounded with its pollen parent, *reniforme*, but the two are very distinct, *reniforme* is a dull, reddish-pink, with a distinct black mark in the two upper petals, and I take *reniforme* to be the original from which the dark blotch in the show *Pelargoniums* originated. The flowers of *sapeflorens* are of a brighter colour than those of *reniforme*, and instead of the black marks in the upper petals, the flowers of *sapeflorens* are dotted all over with faint black spots, and sometimes a little veiny; the leaves are larger than those of *reniforme*, and much softer, and the stems are much more gouty, a quality inherited from its mother—*echinatum*; by these marks, the two can easily be distinguished; they are very common in the nurseries, and every one who is looking out for cross-breeders, ought to possess them; they were extensively crossed thirty years ago, and some of their seedlings, now lost, would be considered good bedders at the present day. Most people know how shy *echinatum* is to flower, and that it blooms early in the season, and after that goes to rest like a Cape bulb; on the other hand, *reniforme* is a most free bloomer, and continues to blow till late in the autumn, and its pollen has at once conquered the natural habit of *echinatum*, and turned *sapeflorens*, their offspring, into a free and perpetual bloomer, so that we need not despair, in crossing this family, if one of the parents exhibits qualities we do not approve of, provided one of them is to our mind.

Cortusafolium.—This has a bright pink flower, and belongs to the same group or section as *Echinatum* and *Reniforme*, and like them, has been the parent of many of the old greenhouse kinds, that we should be now thankful if we had them to bed out; it is common where the wild ones are kept. One of the best crosses from this species was called *Comptum*, and a figure of it is given by Sweet. *Sapeflorens* was the other parent, and as we have the two now to work from, *Comptum*, though long lost, may easily be originated a second time, and all of them may be tried with crosses of the present day, particularly with the fancies or little geraniums, as *Ibrahim Pacha*, and if they will cross, the fancies may soon be brought out with a more hardy constitution, and their flowering time extended over the whole season, two qualities which every lady sighs for, when viewing the most extraordinary specimens that are yearly exhibited for competition at the great London shows. "Oh! doctor, doctor, what a charming flower-bed that and that geranium would make, if one could keep them so all the summer." I have had a hundred such remarks made in one day, no matter who the

doctor was, or whether he was a doctor at all. The best doctor for our present purpose, is he who can infuse the hardihood of the wild Cape Geraniums into the new race of fancies, for most of the wild ones are much more hardy than the generality of the prize sorts, as I have proved over and over again, having the two growing side by side in the borders of a conservatory wall, where it was very rare indeed to lose a Cape species in winter, and where no winter passed, however mild, without leaving blanks in the large sorts.

Echinatum.—This is the most common of all the original species, and the name of it means hedgehog-like, because the stems of it are prickly. I have said already, that its natural habit is to go to rest soon after it has done flowering, and that is also the natural habit of many of the tuberous-rooted, and the fleshy-stemmed sorts from the Cape, but it is not difficult to cause them to change this habit under cultivation. If they are turned out of the pots in May, and planted out-of-doors, or in a cold pit, and well watered at first, till they take to the new soil, there is not one in the whole tribe, as far as I have tried, but will go on growing to the end of the season, and then the spring or May flowering ones will all flower again in the autumn, and far superior to anything we have seen under pot-culture. I once had a patch of *reniforme*—no matter when in full bloom—in a south border, late in the season, and the man from whom I had it, and who flowers it in a pot every year, took it for an entire new species, and asked for a piece of it, as something quite new to him. A great botanist, who saw it soon after this, was taken in the same net, and declared the plant was new to science, and that I ought to take special care of it, being one of the finest of the race for a border plant. I was wicked enough in both instances, not to say what made all the difference. This *echinatum* will flower just as well as *reniforme*, in the autumn, if it is planted out in time, and of all the wild species that I have seen, it has the best habit of flowering for the flower-beds, the foot-stalks being stiff and erect, throwing up the flowers far above the leaves, like *Tom Thumb*. I therefore recommend it most strongly for a breeder, and it seeds freely in its own section, which is the same as that of *reniforme*, *sapeflorens*, &c. A fine cross from it, by the pollen of *sapeflorens*, was figured by Sweet, by name *erectum*, which is now lost, but may easily be had again, and will be an acquisition for the flower-garden, as the foot-stalks stand quite erect, as the name implies; the flowers are of a beautiful lilac cast. This seedling, when we shall again possess it, should be tried with the pollen of *Sidonias*, and the high-coloured fancies for an entire new cast of bedders. Indeed, without some such experiments with these wild species, we may just as well go to bed at once, for all that we can do with the worn-out crosses we now possess, as far as the flower-garden is in question. *Cortusafolium*, *reniforme*, *echinatum*, are all of them excellent breeders, and their first and second crosses will unite with many of the other sections, witness *flexuosum*, which they pass off as a species, but it is a cross from *fulgidum*, the finest of them all, and *sapeflorens*; it originated in Colvill's nursery, under Sweet's crossing, with his own hands, and is the only one of the hundreds he originated that is now exhibited at our metropolitan shows. It also blooms in the open ground from May to October, and being so near akin to *fulgidum* is one of the very best crosses that one can now take in hand to go on for high-coloured seedlings, unless, indeed, the black markings of its grandfather, *reniforme*, should reappear in the seedlings from it; but I shall treat of how this is to be avoided under *fulgidum*. For the present I must name one more belonging to the *reniforme* section called *crassicaule*, or thick-stalked, and the stalks or stems of this one are really very thick indeed, much more so than those of *echinatum*, which is in the

same group. This *crassicaule* is not much of itself, and probably many a geranium grower would not pick it off the walk, but wheel his barrowful of compost right over it, and pass it by as useless. It is, however, the very best geranium in the world for the cross-breeder, and if all the geranium-worts in the world were at the bottom of the sea except this one, with *fulgidum*, *reniforme*, and two more I cannot name, it would be possible to stock the gardens over again with as good sorts as we now possess, and with a greater variation than many of us think possible at the present. If I were allowed the expression, I would say that this *crassicaule* is the only species known to us in which the *genuine milk* of the race can be detected, and for this milk, or, in other words, for the purity of its white, or milk-white blossoms it is invaluable for the cross-breeder. D. BEATON.

OLEANDER CULTURE.

THIS subject has frequently been referred to of late, and so far as I recollect, was discussed at some length at an early period of the history of this work, by our friend Mr. Beaton. Under these circumstances, I should have preferred referring to the past, instead of going more fully into detail, were it not that the enquiries and statements on this subject could not be satisfactorily attended to in the correspondents' column.

The plants popularly termed Oleanders are, botanically speaking, varieties of a species of that name, belonging to the genus *Nerium*. The derivation of this family name, from *neros*, moist, furnishes a hint as to the general treatment the plants require. Of the species, I have never seen the yellow one, and have never grown the *thyrsiflorum*. *Nerium oleander* is the species most generally cultivated, and, according to the variety, its flowers are produced single or double, pink, or red, or white, or variously striped. The pinkish red, and white double-flowering, used to be our favourites.

Native Locality.—I am not aware that these plants have been found in the new world, but they are at home in an extensive tract in the old, ranging somewhere from the 81° to a little beyond the 36° north latitude. No doubt they will be found in suitable positions nearer the equator than the first point indicated, but that will generally be on the Asiatic continent; while, in the higher latitudes indicated, they will be met with on the northern shores of Africa, and the southern points of Europe. Nor would the relative circumstances in the two cases, as respects temperature, be so different as at first sight would be supposed. In the first-mentioned latitude in Asia, the air will be somewhat cooled by the large body of water to the south; while, on the other hand, in the higher latitude indicated, an extra heat is imparted to the atmosphere from the radiation taking place from the hot lands and burning sands of Africa. Though, therefore, the plants will grow nicely in a common greenhouse, yet even upon the score of heat alone, some management is required to bloom them there year after year. Whatever may be the locality as to latitude and longitude, the position in which the plants are found is generally the same, namely, by the sides of rivers, lakes, and swamps, likely to overflow their banks in the rainy season, and to become dry and hard-baked under the dry season that succeeds.

These things known, we are presented with the first principles of successful culture. But will attention to these alone insure success? No, unless these principles are made subservient to our peculiar circumstances. Inattention to this is the source of most of the disappointments that reach us. In this island, we have no clearly defined wet and dry, hot and cold, bright and dull seasons regularly following each other. In the case of tender exotic plants naturally obtaining all these

conditions, we think we do well when we get them to grow in summer, and manage to give them a rest, by dryness and a low temperature, in winter, forgetting that the dry period the plants possessed in their own land, was one not associated with cold and gloom, but with the greatest heat and the brightest sunshine. To succeed, therefore, with such plants as those under consideration, we must contrive to give them not merely rapid growth, but the maturing of that growth; in fact, to combine a rainy and dry season in the length of one of our summers. The rest we give such plants in winter, is not to consolidate the wood, or set the flower-buds, but just to keep them as the autumn has left them, ready to be favourably operated upon when an accession of moisture, heat, and light is imparted. Excess of temperature in winter, with a fair supply of moisture—excess of moisture in a cool temperature—excess of dryness, will severally yield you growth and barren flower-stems next spring and summer.

These general matters conned over, let us now glance at particulars; and, first, the *propagation by cuttings*, and the condition of the cutting. The young shoots that start from the base of the flower-stem, as mentioned by a correspondent to-day, will do, if placed in a bottom heat; the tops of young shoots that have not bloomed will answer better; failing these, the stems that bloomed last season will answer well, cut into lengths from six to twelve inches long, several of the lower leaves, if remaining, being removed, and the base cut across at a joint. The two first kinds of cuttings will strike best in moist sandy soil in the usual way; the last kind will emit roots soonest in water, such as in a wide-mouthed phial, and the water frequently changed. All of them will root quickest by obtaining the assistance of a hot-bed. Those struck in water, should not remain long in it after roots are emitted, and they will require to be kept more moist afterwards, for a fortnight or so, than those struck in sandy soil.

Time of Striking.—If you have a hothouse, or hotbed, you cannot strike too soon in the spring. If you have no convenience but your greenhouse, it will be time enough to place them under a glass in the warmest part there in April. In the first case, you may obtain blooming shoots the following season; in the second case, you can hardly expect them until the second summer. As the main points of treatment will be identical, to avoid confusion we shall suppose you are propagating now. Then—

The Potting should proceed as soon as the plants are struck. Small pots should be used, and rather light compost, to encourage rooting; sand, leaf-mould, and peat, may share with loamy ingredients in several first shiftings; as the plants progress in size and age, nothing is better than one part dried cow-dung to two of stiffish fibry loam, with a little charcoal. In all cases where you expect bloom the following year, the last shift should be given by August. One reason why a correspondent's flowers ran off to nothing in July, was his shifting them in the previous April. A check was first given, and then an impetus afforded to the growing instead of the flowering principle.

After-management: Growth. After potting, this must be the hobby. The flowers next season are produced at the points of shoots, grown and consolidated in this. From cuttings with a terminal bud, just let it grow on, and be content with one strong shoot. From plants formed of older stems you may grow on one, two, or sometimes three shoots, if they look vigorous. Every shoot intended for blooming must be of equal strength, or nearly so; this is accomplished by depressing the stronger and elevating the weaker. In one mode of culture we shall by-and-by see that it is not desirable that all should be of equal strength, because all are not wanted to bloom. Meanwhile, as stated,

growth now must be encouraged. A hothouse, a plant-stove, a hotbed, anywhere affording a temperature of from 55° to 65° at night, and 70° to 80° during the day, with plenty of moisture at the roots, and moisture in the atmosphere, and closeness and a little shade in bright sunshine. By August the treatment must gradually change, by giving more air and full exposure to sunshine.

Maturing the growth.—For this purpose we place them in a sunny spot out of doors, against a wall or paling, in the end of August, and allow them to remain there, protected only from heavy rains, until the middle of October. At first they will want good waterings, and a few syringings over head, to lessen evaporation, but all this is gradually curtailed, until finally the leaves can just manage to stand the sun without flagging. Then they are *rested*, or put to bed in a cool greenhouse, or outhouse, where the temperature is seldom below 35°, and as seldom above 45°, unless from sunshine. Here they are kept in a medium state, neither wet nor dry, until it is desirable to start them into bloom the following year.

Then two modes present themselves, according as the plants are to have the advantage of a forcing-house, or to be grown in the greenhouse, and yet every shoot expected to flower. First, in a forcing-house, ranging from 50° to 60°, and the plants, duly prepared, will stand forcing well. At first they are removed into the coolest part of the house, in a few days to a position where, near the glass, they can obtain every ray of light, and where shortly a rise of 10° in February and March will do them no harm if well supplied with water at the roots. In a few weeks, less or more, the flower-buds will show, then to prevent the chance of a check, the pots are placed in pans of water, and manure water is freely given to them. By-and-by, young shoots will issue from the base of the flower-stalks, some stop these, I prefer picking them out at once with the point of a knife, when two inches or so in length, only removing one at a time, the strongest first, leaving a space of a day or so between them. The strength is thus thrown into the flower-stem. When the blossom expands, the plants are removed to the conservatory; as soon as the blooming is finished, they are brought back again, cut back to within a few buds of the base of the shoots, fresh potted when the young shoots, after being thinned to the desired number, are several inches in length, and then the same course of rapid growth, &c., gone through as in the first season.

In a greenhouse this mode will not answer. You will not have *heat* enough to bloom the plants freely until April and May, and July will often come and go, until the blooming is all over, and as to getting strong young shoots for next season, that is *impossible* in the time. One season, therefore, must be appropriated to growing, and another to flowering, and we have done this by two modes, and could not say which was the best. By one, as soon as done flowering, we have set the plants out-of-doors, and given them rough treatment in autumn and winter. Cut the plants down in spring, put them in heat, and give the young shoots the before-mentioned treatment. By the other mode, we cut down the shoots shortly after flowering; top-dressed or shifted after the young shoots broke, keeping the plants in the greenhouse all the autumn and winter, and just slowly moving. They then got a good place near the glass in spring, were grown as quickly as the heat of the greenhouse would permit, and set out to mature in August, &c.

I think the matter will be pretty well exhausted if I mention, in conclusion, how the same plant may flower year after year in a greenhouse by having always two crops of shoots,—one to bloom this year, the other to bloom the next. This is the mode most likely to be

acceptable to those with limited room, and that under which I have witnessed the most gorgeous specimens. There is not the slightest difficulty after the second year. I had this mode in view, when I stated that in one case it was not desirable that all the shoots should be equal in size. Now, for clearness, I shall suppose a case. There, towards the end of March, we are looking at a nice young plant with *five* shoots; *two*, eighteen inches in height, we expect to bloom; *two*, six inches, we do not expect to do so; and one of twelve inches, of which we are doubtful. We cut the doubt at once, by severing the shoot a few inches from its base, believing it will yield us one, if not two, young shoots that will be as strong as those now six inches in length. Whatever we do to encourage the blooming shoots, will also encourage these future-prospect ones. They will receive more light and air after the two blooming ones are cut down to two or three buds from their base. And young shoots from these again will have sprung several inches before the plants are put to rest for the winter, and be ready to take the place of future-prospect ones for the succeeding year, whether the plants have their maturing process given to them in a very light and airy part in the greenhouse, or out-of-doors in the autumn, though the latter will generally be found the best. Regulating the number of shoots before blooming; pruning back and regulating afterwards; shifting, when necessary, when the young shoots have broken; plenty of rich nourishment when blooming and growing, and maturing in autumn, are all that is necessary.

Insects.—A nasty scale is sure to annoy them. Many things will kill it, but will kill the plants too in unskilful hands; warm soap water, and a hard brush or sponge is the safest. R. FISH.

BROWNEAS AND THEIR CULTURE.

THIS is a genus of stove shrubs, or rather little trees, rising to the height of from six to eight feet even in our stoves. They have large pinnate leaves, and heads of scarlet flowers, and make, when in flower, a truly magnificent appearance. Being natives of the West Indies they require the heat of the stove constantly, and would thrive much better if the pots were plunged in a warm bed of tanner's bark, at an average heat of 80°.

The Browneas belong to the natural order Leguminous Plants, one of the largest and most useful of the natural orders of plants; to prove this, we need only mention that it contains the pea and the bean. The following are the species of *Brownea* at present known and cultivated in our hothouses:—

- B. ariza* (orange-scarlet-flowered B.); S. America.
- B. coccinea* (scarlet B.); West Indies.
- B. grandiceps* (large-headed B.); Caraccas.
- B. latifolia* (broad-leaved B.); Trinidad.
- B. racemosa* (clustered B.); Caraccas.
- B. rosea* (roseate B.); Trinidad.

CULTURE.—*Propagation.*—In striking cuttings of stove plants it is generally found that the young, newly-made shoots form roots the quickest, yet there are some exceptions, and experience has proved that the genus *Brownea* is one. If young shoots of this are made use of as cuttings they quickly damp off; it therefore becomes necessary to try shoots that are more ripened, or have become more matured. These shoots will succeed and produce roots, and in the following way the propagator must proceed:—Take off the top shoots in early spring, just before they begin to grow; cut them off just at the junction, where the preceding year's wood terminates, choosing such shoots as would not be inconveniently long for the purpose; trim off the lower leaves, and insert them into a pot of a convenient size to allow a bell-glass to fit within the pot, and the glass should be large enough to allow the leaves to stand clear within it

without touching the sides, though this may be managed better by propping the leaves back from the glass with short sticks of clean white deal. The pot for the cuttings should be prepared in the usual way, by good drainage; then filled with light loam and sandy peat to within an inch of the top, the remaining inch to be filled up with pure silver sand. When the cuttings are planted, and duly prepared to receive the bell-glass, give a gentle watering, and let the pot stand a space of time to allow the leaves to become dry; then fix the bell-glass on, and plunge the pot in a bed of tanner's bark, or, if that is not at hand, place it under a hand-glass upon a heated surface of coal-ashes or sand. We have known them struck successfully by being plunged in the earth of a cucumber-bed, before the cucumber plants had engrossed the whole surface of the bed. Wherever they are placed, they will require shading from the rays of the sun till roots begin to push forth; this may be known by the shoots growing also; the bell-glass may then be lifted off for an hour every morning and evening, closing it down during the middle of the day. We would, however, warn the new beginner that this ripened wood takes longer time to produce roots than young growths of other kinds of plants. As soon as a sufficient quantity of roots are formed, pot them off without delay; it is always dangerous to allow any kind of cuttings to remain long in the cutting-pot after roots are formed. After they are potted they will require to be protected rather longer from the full sun and air, but as soon as they can be inured gradually to bear it, let them immediately have the benefit of it.

Soil.—These plants being of a woody texture, require a strong, rich soil: good yellow loam, one-half; sandy peat, one-fourth; and one-fourth vegetable mould, will suit them well. Drain the pots well, and use the compost without sifting.

Potting.—Whilst the plants are small and young, they may be potted twice during the year, first in February and secondly in July; by this means two growths will be obtained the same season. But when the plants have attained a considerable size, once a year will be sufficient, because the object will be then, not so much to increase the size of the plant, as to induce it to flower, a circumstance not so likely to happen if they are forced into growth by frequent pottings.

General Management.—Rest is also as needful to these plants as it is to any others, to cause them to produce flowers, the grand object for which we cultivate ornamental plants. This may be attained in the usual way, by reducing the temperature and giving less water at the same time. The best period for this, in our stoves, is the short, dark days of winter; the heat then should not exceed 55° by day, and 50° by night, and no more water should be given than is absolutely necessary to keep the plants from drooping and shedding their leaves. As soon as the warm days of spring approach, let the stimulating influences of fresh earth and increased heat and moisture be applied. With regard to repotting, the state of the plants must be considered. As the plants are free growers, it is desirable, on account of their size, to dwarf their growth; this may be done in the way the Chinese do, by keeping them in, comparatively speaking, small pots. If, then, they are tolerably healthy, and have attained a fair size, do not repot them, but only top-dress with fresh earth.

The first time we saw *B. grandiceps* flower was in the stoves of R. Harrison, Esq., near Liverpool. It was a plant about four feet high and three feet through, was perfectly healthy, and, if we recollect right, had not been potted for two or three years, the check, no doubt, operating to induce it to flower. During the growing season it was occasionally watered with liquid manure, and received in the spring a top-dressing of rich earth. The heat when growing should be increased to 75° by

day and 65° by night. The tan-bed, if one is used, should then be renewed, and the plants frequently syringed; in short, a liberal treatment adopted, which will most likely enable the plants, if of moderate size and well rested, to flower. T. APPELBY.

MR. GLENNY ON FLORISTS' FLOWERS.

TWENTY-TWO BLOOMS OF CINERARIAS (M. H.).—Splendid colours, but good for nothing in the present day; we are frequently obliged to reject everything from purchased seed. It is scarcely possible to obtain anything in advance, without saving the seed ourselves. As we have asked several times "How can we expect a man to sell seeds which are likely to produce valuable novelties?" It is said that a man may have more than he wants, and, therefore, cannot grow it himself. But he would rather throw it away than sell it, if saved as it ought to be, because he does not want anybody to stand the same chance as himself. When any man, famous for his growth of a particular subject, sells seed, do we imagine it is the same kind as he sows for himself? No! The few he saves seed from, for his own use, are far enough away from all others. He gathers from his general collection, and from his rejected seedlings, to serve the public with, and we may fill a house, or grow an acre, without obtaining one that is better than we possess already. We have three more lots of *Cinerarias* (M. D., W. R., and H. J.), less in number, but of no use as show flowers.

CAMELLIAS (C.).—Colour not new and only semi-double. *Myrtifolia* is far better. (H. P.).—Very pretty, but no advance in anything. *Bealii's* fault is sinking in the centre, small, indifferently shaped petals, and paler than the outside ones. H. P.'s seedling has the same fault in a worse degree. (A.).—Pale rose, the form of *Donklearii*, which would not be tolerated, but for its distinct red and white. The form is very bad. There is hardly a worse. (Jane S.).—Too ragged on the edge, and only semi-double, of no use whatever. Use worthless seedlings as stocks for better.

VERBENA CULTURE.

(Continued from page 308.)

BEFORE proceeding to describe our method of raising new varieties from seed, we will redeem a promise we gave a few weeks back, that a list of the best existing varieties for exhibition should be given during the issue of these papers on Verbena culture, and the time for purchasing being now fast approaching, we think this a fitting opportunity to give such a list.

No propagation can take place till plants are procured, and without some guide, how can the amateur know the kinds that will answer his purpose. We confess that we approach this part of our task with some diffidence, for amongst so many various kinds, shapes, and colours (and what is more formidable, perhaps, the criticism of the would-be-knowing ones), it is no easy matter, not only to please others, but even to satisfy ourselves, that our recommendation will be right. We trust, however, that the list will be useful. Every possible care has been taken to render it so, and they are, at all events, selected to the best of our judgment, without favour to any party or clique, a word which some writers are too fond of applying, even to respectable, honest dealers. We will first give the names of good old varieties, arranging them in colours, commencing with white, and ending with the darkest shades. Afterwards, a very few selected new kinds, such as have obtained the approbation of the judges at the different Floral Societies in and around London, during the last year.

White.—Blanche de Castile, Jeanne d'Arc, Mont Blanc, *Wonderful, *Boule de Nieve.

Blush.—Beauty, *Princess Alice, Pauline, *Reine de jour.

Lilac.—Beauté, Dorothee, Madame J. Henderson, *Vultigeur.

Amaranth.—Estare, *Frederic, Juno.

Blue (or approaching to blue).—*André, Iphégenie, *Mrs. Mills, M. Paquin, Uranus.

Violet Purple.—Auricula, *Apollon, Comte de Paris, *Morphée, Stephanette.

Dark Purple.—*Alfred.

Pink.—*Enchantress, *Grandis, Leontine, Marchioness of Cornwallis, Niobe, Verrier.

Cherry.—*Cerise Unique, Jules, *Cardinal Wiseman.

Rose.—Beranger, Camille, Eugene Sue, *Model of Perfection, *General Taylor, *King, *Magnificent.

Scarlet.—Conquérant, *Defiance, *John Salter, *Shylock.

Carmine.—Le Seduisante, *St. Margaret.

Crimson.—Atrosanguinea, *Chauverii, Figaro, Gloire de Paris, *Louis Napoleon Bonaparte, Ne Plus Ultra, *Othello.

Dark Crimson or Maroon.—Emperor of China, *Napoleon Bonaparte, *Nigricans.

Those marked with an asterisk (*), are most suitable for pot-culture. The average price of the above is from 18s. to 24s. the dozen. We do not suppose that any grower will purchase all the above at once, the best way will be to select as many as he chooses, and send the list to any respectable nurseryman, who will immediately let him know the price, and whether he can furnish them.

NEW VARIETIES TO BE SENT OUT IN SPRING.—*Alba magna*, a good white, fine shape, and large flower. *Ariel*, white, pink eye. *Delight*, rosy crimson. *Eliza Cook*, purple. *Koh-i-Noor*, dark rose, large flower, truss large. *National*, shaded-red. *Orlando*, lilac, blue; beats *Mrs. Mills*. *Purple Rival*, light purple, white eye, large truss, fine form. *Standard*, rosy salmon, very large and fine. *Miss Jane*, white, yellow eye, large and compact. *Virginus*, rich purplish-blue, large, and extra fine. *Monsieur Jullien*, dazzling crimson-scarlet truss, fine form.

RAISING NEW VARIETIES FROM SEED.—Whoever attempts this should be well aware what are the properties necessary to constitute a first-rate Verbena. From such only he ought to gather seed. The qualities described below, as necessary to constitute a first-rate Verbena, are quoted from that excellent work, "Glenny's Properties of Flowers." Speaking of the Verbena, he says:—

1st.—The flower should be round, with scarcely any indenture, and no notch or serrature.

2nd.—The petals should be thick, and flat, and bright.

3rd.—The plant should be compact, the joints short and strong, and distinctly of a shrubby habit, or a close ground creeper, or a climber; those which partake of all are bad.

4th.—The trusses of bloom should be compact, and stand out from the foliage, the flowers touching each other, but not crowding.

5th.—The foliage should be short, broad, and bright, and enough of it to hide the stalks.

The above "Properties" were written five years ago, and remain good to the present day, but we think the writer scarcely lays stress enough upon the colours. We would suggest this as an additional property—that the colours should be perfectly clear and distinct in self, no shade should prevail; and in stripes, the line where the colours separate should be well defined. The form of the truss also is left rather indistinct. We think it should be as nearly flat as possible, so as to show off every individual flower to advantage. There is no

doubt, if Mr. Glenny should publish a new edition, he would add considerably to the points or properties of the Verbena, and some other flowers that have been much improved since 1847. From flowers possessing the above properties, the aspirants for the honour of raising superior varieties should gather seed as soon as it is ripe; dry it well, wrap it up in paper, and keep it till the sowing time arrives. That time is about the middle of March. Sow it in light, rich earth, in shallow pans, cover it slightly, and place the pan in a slight hot-bed, or on the shelf near the glass of a greenhouse. Keep the soil moderately moist, and the plants will soon make their appearance; care must be taken that the soil is not sodden with wet, or the young tender plants will fog off. As soon as they can be handled, prick them out into other shallow pans, and keep them close to the glass. When they have made fresh growth and a few more leaves, place them in a cold frame, and expose them to the full air every fine day, till all danger of late spring frosts has passed away; then plant them out in an open part of the garden, and when they bloom, select such as possess improved properties, and throw the rest away. From such improved varieties take cuttings, and increase them so as to be certain of securing a stock the ensuing spring. T. APPLEBY.

THE CABBAGE-WORTS.

THIS large family, for whose support we often see full one-third of the available garden space devoted, is too well known and esteemed to require even a passing eulogy from us; but, as the various members of it differ considerably from each other, and some of them may be but imperfectly known in districts where THE COTTAGE GARDENER is read, we make them the subject of our present paper, and will confine our remarks to the description of the various subdivisions into which this remarkable family is separated, rather than enter upon their cultivation, which is, perhaps, with some trifling difference, the same in all.

At what period the cabbage was introduced into our garden as a vegetable is not precisely known, neither is it worth while to enquire, as a slight knowledge of the family gives every reason to believe that the first "cultivated article" differed very considerably from any in use now; and that improvement which a well-directed science has given to this production, is such as leaves botanists in doubt as to its origin. The traveller is often shown a yellow-flowered, weedy-looking plant, partially clothing the chalky cliffs at Dover, as the parent of one-half the useful productions of our gardens, while others assert that we have imported them from the continent, in which opinion we fully concur; but, at the same time, we question much if their original state, prior to continental improvement, was anything more useful than our wild plant, and if this be the parent, we have a useful lesson set before us as to its culture, in the nature of the locality where it is found. We may from that infer that a soil unusually calcareous would suit it best; unless in this case we admit the doctrine of that eminent horticulturist, the late Dean of Manchester, "that the position plants are found wild in, is no proof of its being the most suitable for them." That learned divine asserting that a great deal of weakly vegetation may have been driven from the locality most suited to it by the stouter claimants for such favoured spots, and the consequence is, that many small, puny, or delicate species are to be found in places not agreeing with their welfare, having been driven there by the more vigorous advances of contending vegetation.

Now, whether the wild plants we have noticed as grazing the chalky cliffs of our southern coasts be driven over the precipice by the herbage occupying the

down above, we will hardly stop to enquire, suffice it to say that this member of the Cabbage-worts is there; and as it is never seen in any soil or situation exactly the reverse, we may set down that the amount of calcareous matter necessary to perfect the tissues of a cabbage or cauliflower, is more than a peat bog, or similar place, has got to spare, and we are thereby led to believe a situation the reverse to that is the one best suited to it, other things being likewise favourable. Taking, therefore, a soil in which lime or chalk exists to a considerable extent, and one, likewise, made rich by manure or other decomposed substances, we have before us a soil the most likely of any to produce this vegetable in the greatest perfection.

Many writers have assumed the parent plant to be only an annual; but, at the early period it is seen in flower—the end of May—it can hardly be expected to be the production of that one season, but is the result of seed sown some time in the latter part of the preceding summer. Somehow, however, cultivation has prolonged this period of existence, and cabbages sown in July or August do not run into flower-stem until the spring of the second year, provided the kind be good, and other things favourable; and it is one of the chief points in excellence to overcome the tendency some have to run to seed, especially if sown too early. We have seen *Cape Brocolis* prematurely go to seed in August; and we all know how apt forward cabbages are to “bolt” in March, and cauliflowers a little later. The two latter, from a too great advance having taken place in the autumn, and the former from spurious seed, stunted growth, or some other cause, all of which operate so alike, that nothing but a careful examination and acquaintance with the varieties in question, and the locality where grown, can determine the exact period when such things ought to be sown; and in writing for a public journal like *THE COTTAGE GARDENER*, of which the circulation extends far and wide, our duty is to point out the different treatment this and other vegetables require in places some hundred miles apart.

We have seen *Brussels Sprouts*, *Savoys*, and *Curled Green Kale*, sown in the middle of August and continue their growth the whole of the ensuing summer without running to seed, though this was in the “far north;” but, except in the case of *Savoys*, and the large *Drumhead* or *Field Cabbage*, which it is common to sow in September, everything else intended for winter use may be sown early in spring, and perfected the same season, in the southern parts of England. Now, the *Cabbage* is no exception to this rule, because it, too, can be grown in the time alluded to, and even less; but the well-directed skill of several generations of cultivators have so changed the habit of this plant, that it is now made to stand the winter when of a good size, and perfect its growth in the spring, provided the seed be of a good variety, and other things favourable; and one of the points of a good cabbage is the property of standing a hard winter when half-grown, without prematurely running to seed in spring. Another point is the quality of the production, which, in a spring cabbage, ought to be tolerably firm, and when cut through perpendicularly, the stalk ought not to show itself as advancing any distance inwards; and the leaf-stalk ought to be as small as possible, and quickly develop itself into those beautiful and intricate webby portions of the leaf, which alone constitute the eatable part of the cabbage.

We need hardly add, that besides the “first cut,” its after produce ought also to be good, because a plant that is capable of resisting the temptation it has from its parentage to “bolt” in April, is not likely to do so until the return of that season again; the reason is obvious, and is in accordance with one of those beautiful laws of nature which we see exemplified every day. The seed of the cabbage, and others of its tribe, require

some time to ripen, consequently, were the plant only to flower in July, as wheat and other cereals do, sufficient season would not be left to accomplish that task which nature had ordained it to do. It is true, specimens of the family will occasionally run off to seed as late as September, but that is only a proof that cultivation in that instance has not been able to restrain them for some weeks later, which it is in general able to do.

Having taken a glance at some of the habits of this extensive and useful tribe of plants, let us proceed next to their culture, beginning with the *Early Cabbage*. This kind of cabbage proper to sow now, is not the same that we would recommend for standing the winter, and coming into use in April or May. Those suited for the latter purpose, ought to be hardy, compact, and early, rather than large, size being with them a secondary consideration; while spring-sown ones, not being always wanted to come in at the earliest possible day, may be of a larger kind, for there is nothing likely to occur in the season to mar their progress. We therefore say—sow some of the larger and finer descriptions of cabbage, of which the *Spotboro* and *London Market* are tolerably good. It is almost needless to say, they ought to be sown on a nicely-prepared bed or border; and if mild weather continues, the antidotes to slugs must be put in requisition, as we have so often recommended. These precautions are the more necessary, if the beds be margined on one side by a box edging, which affords a retreat to these depredators in the day-time; but, as we last week gave the details of what ought to be now sown, we can only say, that in addition to what is there stated, some *Walcheren Brocoli* ought also to be sown; and ground must now be got ready to plant out *Cabbage plants* that may have stood the winter in nursery beds; but as our space is occupied, we must leave our further remarks until another opportunity.

KITCHEN-GARDEN SUNDRIES.—See that the *Peas* do not suffer from slugs, which the mildness of the winter has left as a legacy. Take advantage of a dry day, and stir the ground with a three-pronged fork (walking backwards) between the rows of *Cabbages*; *Brown Dutch*, and other *Winter Lettuces*, will also be improved by surface-stirring the ground in favourable weather. Attend carefully to *Cucumbers*, which stop when they have advanced any length. Those who have not turned out their plants into the places allotted them, ought to do so without delay, provided they have two or three rough leaves, and the bed prepared for them, with the prospect of maintaining its heat by after linings or other means. A porous compost, tolerably rich, is said to suit them best, and some years ago, peat was strongly recommended; but we have never been able to keep the plants in such long-bearing condition as when grown in good turfy loam, with a little (not too much) leaf-mould. We may give the inexperienced a hint by saying, that as *Woodlice* and other enemies are very likely to be concealed in such a soil, he must guard carefully against them; and, after planting, make the hill around the plant fine, and put a little coarse sand against the stem of the plant, and scatter some lime or wood-ashes over the hill a little way from the plant; it is not likely that tender insects will crawl over such obnoxious substances, and the plants will be safer. Continue to plant all hardy things, as the ground is in condition; and do not omit to get in all the *Potatoes* intended to plant as early as possible, and prepare the ground to plant out *Cauliflowers* early next month.

J. ROBSON.

STRONG DRINK IS RAGING.

By the Authoress of “*My Flowers*,” &c.

It is scarcely possible to press too strongly upon the attention of the lower classes the degrading and mischievous

effects of drinking. In the sight of God it is an abomination; it is one of the "works of the flesh," "of the which," St. Paul says, "I tell you before, as I have also told you in time past, that they which do such things shall not inherit the kingdom of God." This ought to be enough to make the practice of drinking terrible in our eyes; but men are so ready and glad to shut their eyes to God's law, and to that which he loves or hates, that it is well to bring before them the sure consequences, even in this world, of indulging in the works of the flesh.

I remember, a great many years ago, the death of a man in our own parish, entirely from excess of drinking. He was scarcely middle-aged, a blacksmith, and possessing the business of the immediate neighbourhood; but his love of beer ruined body and soul. Of course, he began gently at first, as most people do; but when I first remember him it was beginning to tell upon his constitution, and pitiable was it to see him drawing nearer and nearer to the gates of death. At first he began to look pale and sodden, and then his body seemed to become too heavy for the thin legs that upheld it. He went about the village leaning on a stick, the image of misery and disease; his step became slower and heavier; his business was carried on by some one else; and, at last, he was seen no more. He took to the house, then to his bed, and then he went down to the grave.

Another tradesman trod the same downward path a few years afterwards. He was also a man doing well in the world—with an active wife, a clean home, and a young family rising round him—but nothing could wean him from beer, and at an early age it killed him. He died in great bodily pain and distress, in which he had lain some time; but what could this have been to the remorse and horrors of the soul?

The practice and love of drinking, when it does not go so far and fast as in the above-named cases, is always deplorable and wretched. I have seen it in the case of an old man who has worked on the same property almost all his life, who was honest, hard-working, quiet, and inoffensive in his general habits when out of harm's way, but who *would not* help getting intoxicated whenever beer or a beer-house crossed his path. He never went on an errand in his life that he did not come home with a red face, talking thick, and not knowing what he was saying. He was not to be trusted beyond the fields and woods, where he was master of his business, and did his work steadily and well; but if sent to the village for nails, or anything connected with his craft, he was seen no more until night.

His poor wife used to be in great trouble about him. She said he had never been strong in the head since a fall he had from the top of a coach, and she would peep about in great anxiety for him when he was gone on business for his master. Poor thing! she said and did all she could for him, but it was all in vain. William loved beer, and would have it whenever he could. If his head was weak, his passion for drink was strong, and there was no making anything of him. His own wife's words were the most expressive: "When William has had a drop too much," she said, "he is bedlam."

When poor Hannah died, William's glory departed. He had a cottage of his own, but without his wife he could not live in it happily as he did before. He had to pay for washing, mending, &c., besides his beloved beer, and he sadly missed his companion when he sat beside his evening fire. He suddenly, however, professed to have left off going to beer-houses, and to all appearance a change for the better had taken place. He became, apparently, a religious character, one which he had never before pretended to, and his whole look and manner certainly did give hope that the change was a real one. While this lasted, which it did for three or four years, all was quiet and well. He worked when he could, but infirmities often interrupted him, and his strength began to break fast. He was, however, so determined to keep up his wages after his power failed, that those who employed him were obliged to seek more able-bodied workmen, and William often found himself for days and weeks without anything to do. His good resolutions, had they been sincere and built on a sure foundation, would now have stood the trial of the winds and waves that beat against them; but, alas, the love of drink arose and shook itself, and proved that there was no work of grace within. He has

often been met going home, not actually tipsy, but so near it that it was evident he had been sitting long and contentedly in the way of sin and sinners, and, after all he had said about his change of heart and affections, it was a grievous sight to see. The leaves of profession had been thick and abundant in the old man, but there was nothing like fruit which man's eye could see, beneath them.

He lives now under the charge of a tidy couple who lodge with him; but it is a comfortless, half-sober, old age. He has been deaf for many years, yet he contrives to know all the news of the neighbourhood, picked up, most probably, in the beer-houses. Worthless, worse than worthless employment for an immortal soul.

He may often be seen walking about, sometimes carrying a faggot, and occasionally engaged in task-work, as a hedger and ditcher, which he can still carry on. His head and countenance are particularly fine and striking, and he is the complete picture of a woodman while busy at his work. But his strength is failing fast; the grasshopper will soon be a burden, and the day is at hand when beer and beer-houses must be left behind. It is a sad and pitiable sight to see old age cleaving to these abominations in ever so slight a degree. Men are often blinded to their real state before God because they do not sin so broadly and openly as others; but the crime is the same, and, if not repented of, will bring remorse and punishment at the last. To see any man turning in at the door of a "pitfall" is terrible; but when the man has one foot in the grave, when the hoary head and failing faculties cry aloud that "the Lord is at hand," it is a sight doubly dreadful. It utters a loud and bitter cry to all.

Let us strive to avoid the first approaches of sin, and watch ourselves narrowly, lest we cherish an "accursed thing" in our bosoms. Let us not "thank God, and take courage," because we are better than our neighbours; but let us examine our walk and conversation by *God's Word*, and then we shall not be in danger of rating ourselves too highly. While we have time and light, let us walk in the light, lest we deceive ourselves, and go on contentedly to our ruin.

THE GOLDEN AND THE SILVER PHEASANTS.

THERE is in some birds an inherent shyness, an inability to bear the eye of man upon their movements, a tendency to hide in holes and corners, or in thickets and stony hiding-places, or to delight in crepuscular habits—enjoying the twilight of morning and evening, and moonlight nights, but hating the sunshiny glare of day, which renders them radically incapable of domestication. This shrinking timidity is exhibited by the *golden pheasant*, and seems really invincible, though in public exhibitions despair keeps them quiet. We have better hopes in cases where this obstinately retiring disposition is absent; and the courage, pugnacity, and self-possession of the *silver pheasant* was no doubt the cause why Temminck, who seems to have known the bird only as an occupant of aviaries, expresses his sanguine hopes of attaching it to our poultry-yards. I thus translate his words, in order to determine what may be expected from the bird he patronises:—"If we consider the black and white pheasant of China with regard to its natural disposition, as well as to its external form, we shall find in this species much resemblance to the birds which compose the genus *Gallus*; it is tamed with the greatest facility, and may be made to become an entirely domestic bird. Its constitution, which is more hardy than that of the other species of pheasants, also brings it into alliance with the cocks. Like these latter, it only requires ordinary attention; the rearing of the young does not demand the assiduous care which is necessary for those of the other species of which we shall have occasion to speak." Bennett's "Zoological Gardens Delineated" expresses, on the same grounds, the same hope of domesticating the silver pheasant.

Reading these things, therefore, I determined to inquire further about the bird, and make some experiments. A creature of such beauty ought to be made to strut about our country residences, like the pea-fowl or turkey, if no insuperable impediment exists. From one correspondent I heard as follows:—

"I quite agree with your high estimation of the personal

appearance of the silver pheasant. I believe your chances of success in your experiment to be considerable. A neighbour here, who kept silver pheasants, used occasionally to allow them to run about, *till one of them broke bounds.* [There lies the unconquerable difficulty.] I have seen a silver pheasant cock here, who came through a passage into the street, and treated the passers-by with the utmost indifference, and even showed a disposition to do battle with some children, had they ventured to molest him.

"My friend is obliged to clean out the cage of his silver pheasant cock himself, no one else daring to go in; and I have seen the blood drawn from his hand when he has put it in to move some of the feeding vessels. During the laying season, the male bird watches the nest very closely, walking backwards and forwards almost like a sentinel. I recommend you to accustom your pheasant chicks to the utmost regularity in their feeding times, and to assemble at the sounding of a whistle. If you provide yourself either with a common dog whistle, or what they call the railway whistle, and vary your ordinary mode of calling your poultry with some blasts thereof, you will be surprised to find how quickly they will learn the meaning of this method of assembling them. My own father always whistled his poultry together, using, however, the one with which nature had furnished him."—*J. S. W.*

Another informant more decidedly indicates the weak point. "You will *not* succeed with the silver pheasants; they are so erratic that they will go miles for a freak. A friend I met the other day was obliged to give up keeping a cock bird in his garden, because he attacked the nurses and children so savagely. This, however, is in your favour."—*W. D. F.* And such was my own opinion; and being unwilling to believe so able a scientific naturalist as Temminck mistaken in his judgment, I placed some silver pheasants' eggs under a hen, to be the future ornaments of our poultry-yard. Meanwhile, an opportunity of visiting Knowsley—then in the height of its glory—was afforded, and there I learned that Temminck's suggestions had been acted on, and found to be based on groundless hopes. The provoking thing is, that for the first year, or year-and-a-half, all goes on right; an inexperienced amateur would feel sure that he had already added a member of a hitherto unsubdued genus to the domestic vassals of the human race. The birds are already largely sprinkled with their adult black and white feathers amidst their juvenile garb of russett. Over-night they are obedient to their keeper's call, and will even feed from his hand; next morning, where are they? Eloped, absquatulated—*erupit, evasit*—over the hills and far away; whistle as loud as you please, they're gone 'coons!

Subsequently, Nov. 3, 1849, a communication, from the late Lord Derby himself, confirmed the hopelessness of attaching these handsome creatures to civilised society, otherwise than by incarcerating them. "Allow me, by the way, to correct an error you seem to have fallen into as to golden pheasants. It is not their shyness, alone, that has kept them as aviary birds, but their rambling dispositions; so that persons do not like to run the risk of losing them altogether by turning them out. I have done this, and have the last year or two had several bred wild in these grounds, and our sportsmen have often met with them in the shooting covers near the house. A similar objection exists as regards the silver birds, but in their case it is strengthened by their pugnacity, and the consequent fear of their driving away the common pheasant, to the destruction of all battues."

In confirmation of this, I have been informed of a nobleman (name not stated), who gave liberty to two hundred silver pheasants; the consequence of which was, that they exterminated the common pheasants, but without stocking the neighbourhood with their own race, which, on the contrary, gradually dwindled away and was lost.

Now, "both the Baron Cuvier, and more particularly his brother, have pointed out the importance of studying the intellectual character, or moral instincts, of the species (of dogs), as a method too much neglected, and, in this instance, of the first importance."—*Col. Hamilton Smith.* Equal attention ought to be paid to the natural dispositions of birds, before any general conclusions respecting them are decided upon. Among the pheasants there are striking peculiarities, one of which is an innate aversion to true domestication pervading the whole genus. We know

of no species of pheasant which has been tamed so as to be trusted with liberty, in the certainty of its voluntary return home to the protection of man at due periods. If we were told of a newly-discovered gallinaceous bird, the fact that it really had proved domesticable, we should surmise beforehand that it could not be a pheasant; on the other hand, the news of a hitherto unknown pheasant being brought from the recesses of central Asia would furnish no reasonable hope that we had thereby obtained any addition to our poultry-yards. Would any one, on receiving a pair of rare pheasants, in life, venture to turn them loose, even though bred in captivity, in the same way as he would a newly-arrived cock and hen sent over from the east?

Amongst other genera the capacity for domestication seems universal throughout that special genus. The geese, and the birds most nearly allied to them, exhibit it in a remarkable degree, in contrast to the swans, the largest, and the teal, the smallest, of fresh-water birds—being, so far, examples of the happy medium. As yet we know little of more than one species of turkey, but there is good reason to hope that useful poultry stock may be obtained from the turkies of central America; the great fear respecting the beautiful ocellated species is lest it should prove too tender here, a point which has scarcely yet been tested, and which can only be guessed at without a fair experiment. The only living bird in Europe, a hen, was knocked down at the Knowsley sale for the trifling sum of £12.

We may be considered as assuming too much in resting any argument on the innate and unchangeable tempers of birds, but a most observant investigator has recorded his remarks on the inherent dispositions that are permanently hereditary among certain races of men; and we cannot suppose the inferior creature to be more pliable in its nature than the vastly superior one.

"The peculiar characteristics of the three great races, which have, at different periods, held dominion over the East, cannot fail to strike every reflecting traveller. The distinctions between them are so marked, and are so fully illustrated even to this day, that they appear to be more than accidental—to be consequent upon certain laws, and to be traceable to certain physical causes."

It would be out of place here to quote this remarkable passage further, and therefore the reader is simply referred to *Layard's Nineveh*, vol. ii., page 241.

D.

(To be continued.)

PRACTICAL OBSERVATIONS ON THE MANAGEMENT OF BEES.

By Henry Wenman Newman, Esq.

(Continued from page 287.)

BEE PASTURAGE.

Non semper idem floribus est honos vernis.—Hor.

(The same regard is not indiscriminately due to the spring flowers.)

MUCH of the success of bees depends on the good or bad pasturage of a country. A corn country is by far the best, as the clover or grasses afford a long and permanent blossom for the bees, at the time when the early flowers have faded, and in the autumn, where there is no heath, the clover in September supplies its place.

The *Trifolium repens*, or Dutch Clover, is the best, then the Honeysuckle Clover. Yellow Trefoil, or Hop Clover, is also an excellent bee-flower, and blossoms in September.

We must feel how wonderful is this succession of flowers, when we consider that scarcely a week passes from the commencement of the earliest bee-flowers, the Heath, the Crocus, the Willow tribe, &c., without some new blossom starting into life, supplying the bees with their food. The great architect of the universe, who giveth fodder to the "cattle, and feedeth the young ravens which call upon him," has not overlooked even the smallest insects; his superintending and over-ruling Providence is displayed in beautifully adapting every month, and every week, to the supply of all their wants!

I will now give an account of those flowers which supply the bees in my own neighbourhood. The first is the *Crocus*, and next the *Erica carnea* (Flesh-coloured Heath), and about this time there is an exudation from the bark of the

Wyck-elm, which the bees seem to delight in much. The *Willow* tribe come next into blossom, and last a considerable time; the last in blossom of this sort, a full month later, is the Common or *Dutch Osier*, to be seen in every part of England, the catkin of which is very small. The next flowers for the bees, are the *Gooseberries*, *Currants*, and the little *Yellow Pilewort* in the hedge-rows. The *Ribes* or *Red-blossom Currant*, is also a good bee-flower in April. It is a common shrub in most of the gardens in England. I have at least a hundred. The *Dandelion* is rather a favourite; the *Sycamore* and *Maple* (in May) are excellent bee-flowers; and the *Peach*, *Nectarine*, and *Plum*, then the early *Pears*, and afterwards the whole tribe of *Apples*, late *Pears*, *Cherries*, are all favourable in their season to the bees, in the spring. I cannot say much for the *Cowslip*, for I do not know a flower, except the *Primrose*, so little noticed by bees.

Those who have the power and opportunity ought to encourage, as much as possible, the growth of bee flowers and trees. The planter, for instance, should not forget to have a few *Limes*, *Variegated Sycamores*, *Maple*, and *Alder*, interspersed in every batch of trees. The *Lime* is a long time yielding its blossom; I have some trees of twenty years' growth which have never yielded any yet. Nothing is more delightful than to sit under the shade of a large *Lime* tree, and hear the hum of the bees. One of the wild species, the *Apis terrestris*, is very fond of the *lime*, and will remain frequently on the intoxicating blossom until too dark to return to its nest.

I will now furnish my readers with a list of my own favourite garden bee-flowers, and, at the same time, inform them that I have an acre of ground devoted to bee-flowers, shrubs, and trees, near my house, Thornbury Park, Gloucestershire. These, in their order of blooming, are—the *Crocus*; *Erica carnea*, in blossom in March; *Ribes*, or *Gooseberry*, April; *Canterbury Bells*; *Mignonette*; *Stachys lanata*, a splendid bee-flower; *Veronica*, another good bee-flower; *Borage*, sown in June and July, also excellent; *Viper's Bugloss*; *French pink Willow* flowers; *Thyme*, both *Lemon* and common; and *Salvia nova*, a first-rate bee-flower. The *Stachys lanata*, or *Woolly-leaved Nettle*, is an excellent pasture, and lasts full six weeks; the *Veronica* about the same time; last, but not least, in the garden, is the late-sown *Borage*, which Mr. Keys calls the "King of Flowers." This flower I always sow in June or July; it then produces a fine blossom in September or October, when the other blossoms are gone. *Mignonette* should also be sown late for the same purpose.

I have lately got some plants of the *Salvia Nova*; it has a beautiful puce-coloured blossom, and lasts a couple of months; it is a most beautiful flower, and I have noticed more bees, in a small compass, on this flower, than on any other. Its time of blooming is from the end of June to the beginning of September. I am indebted to my friend, Mr. Mayes, of Clifton Nursery, White Ladies' Gate, for this plant. The first I noticed were in his nursery, but it does not increase very rapidly.

The country round me is mostly a grass country, and, after the mowing season, the flowers are very scarce, and as there is no wild heath, as in some parts of Hampshire, for autumnal pasture, I am obliged to sow some late flowers.

Other bee-flowers, shrubs, and trees, not already noticed, are the following. The most excellent are printed in *italics*.

Almond-trees, *Ribes*, *Laurels*, *Laurestina*, *Plum-trees*, *Wall-flowers*, *Apricots*, *White-thorn*, *Black-thorn*, *Valerian*, *Blackberries*, *Beans*, *Asparagus*, *Buck wheat*, *Sycamore-trees*, *Maple-trees*, *Alder-trees*, *Norway Maple*, *Marsh Mallow* (*Althea officinalis*), *Turnips*, *Rape*, *Mustard*, *Tues*, *Broom*, *Teazles*, and, last of all, the *Ivy*, which in October affords a good deal of farina to the bees, "weather permitting," as the fox-hunters say.

Buck-wheat is a good blossom, and generally a late one. In the year 1846, when travelling in Belgium in very hot weather in August, the late-sown *Buck-wheat*, of which every third or fourth field had a crop, seemed to me the only pasture the bees had, as the rest of the country was burnt up by the hot weather.

Honey-dew, that extraordinary exudation, in dry, hot summers especially, has more efficacy than all the blossoms enumerated. One week of real *honey-dew* is equal to a month of the finest bee pasture from any flowers whatever. It is

clearly often a simple moist substance exuding from the leaves of the oak, lime, blackberry, laurel, &c., and also from the body of a small insect of the *Aphis* tribe. Certain it is, that in dry, hot weather, when the flowers are burnt and dried up, the bees collect an immense store from this source.

Dr. Bevan, in his excellent and most scientific work "The Honey-Bee," recommends *orange* and *lemon* blossoms. They may be very good, but I strongly deprecate any greenhouse plants. My reason is, that large greenhouses are very destructive to bees, which find their way into them, and are lost—flying to the windows, and there dying of exhaustion in great numbers.

In a country bare of bee pasture, care should be taken not to over-stock it—a very common error, which generally cures itself.

The uncertainty of our climate renders bee-keeping a most precarious remuneration. I may venture to say that the unfavourable summers of 1837, 8, 9, 40, and 41, caused the death of two-thirds of the bees throughout England. In 1842 (a splendid bee year), some of the loss was made up. I think the average is not more than one good season in four.

"FROM MY JOURNAL.

"Winchester, July 12, 1844.

"At seven P.M., very showery, I observed the bees hastening backwards and forwards at this late hour towards the upper part of the town, mostly where they were kept; I found afterwards they were going to and fro from the beautiful *Lime trees*, near the Cathedral. It is quite astonishing what wind and rain they encountered to get at these delicious blossoms. The neighbourhood of this city, a corn country, abounds with bees, indeed, the greatest part of Hampshire does; and they have a considerable share of Heath about the New Forest."

I will conclude the remarks on bee pasture, by noticing the great value of evergreen plantations to bees. *Laurels*, and several other of the evergreens, afford an exudation for the bees for five months; indeed, from April to October, the bees are never away from them.

Besides the shrubs and trees mentioned, there are many not enumerated, which are of great use to the bees. I must again mention the *Norway Maple*, which blossoms in April, and yields a good pasture to the bees. It is a new acquaintance to me, and independently of its blossoms, the tree forms a beautifully ornamental one in plantations, from the varied colour of its leaves in spring and autumn.

From the middle of May to the middle of June, bee pasture is in all its vigour.

(To be continued.)

TO CORRESPONDENTS.

. We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of the Cottage Gardener, 2, Amen Corner, Paternoster Row, London."

CALYSTEGIA FURSCENS, &c.—This plant, as well as *Rhynchospermum jasmoides*, and *Cineraria maritima*, we are informed may be had of Mr. W. J. Epps, Bower Nurseries, Maidstone.

POULTRY-BREEDING.—No Prize-fighter had better publish his wishes in the form of an advertisement.

THE MORCELLA (or MOREL) is one of the most valuable of fungi for cooking purposes, its flavour being much esteemed for sauces. It is rather difficult to find, as it does not grow very commonly in this country, but is chiefly found in France and Germany. I have always found it in greater abundance where the ground is dry and not much disturbed, in the vicinity of elm trees, more particularly under old than young trees. I used to find it on a dry bank, beneath a row of large elms, in the neighbourhood of Guildford. When Morels make their appearance in the spring, they should be collected, and hung on a string until they are dried, as they are found preferable when used in a dried state than when fresh. They should be gathered as soon as they attain their full size, being liable to get dirty and infested with insects.—Wm. Moore, Chelsea.

OLEANDER BUDS SHRIVELLING (J. N., Omagh).—If you had shifted them the previous August, instead of in April, we have no doubt your bloom would have opened in July, more especially if you had nipped in, or removed the young shoots from the base of the flower-stalk. The decaying of these young shoots at their base, from the decay of the flower-stalk, is not common, and it is still more uncommon to see these young shoots having flower-buds; we suspect it is owing to the abortiveness of the first flower-stalk. By consulting Mr. Fish's article to-day, you will see in what little matters there is room for change, and also that by cutting down your plant you may grow it on, and make cuttings of the

discarded stems; but you must not grudge giving them good treatment, to be rewarded with the blossoms in 1853.

GERANIUM SHIFTING (C. F.).—Your compost and mode of shifting were all proper enough, and though three weeks have elapsed, you must not mind not seeing fresh roots as yet. However, in a cold greenhouse it would have been better to have delayed shifting to the end of February, as you would require now to have a medium temperature at night of 45°, with 10° or 15° rise for sunshine.

HOYA CARNOSA FOR WINDOW (Leguleius).—To have this to bloom in the window in summer, you will be right in putting it into a deep frame, to have the advantage of dung-heat; but the first of April will be time enough, as then you will have the heat of summer for its blossoms. Do not, however, pot it, as you propose, before doing so; let the potting take place *after* the flowering. We are afraid it is looking but too well; give up watering, and give no more than will just keep the leaves from shrivelling, until you see if you are to have flowers.

GLOXINIAS (Ibid.).—These in a dry closet, and shrivelling from dryness, should be induced to swell out; but you must do it carefully, or you will bring on decay. Either water round the sides of the pots, and keep the centre dry, or pack the pots in, and cover them with damp moss, and they will absorb sufficient moisture to distend themselves. For your window, April will be quite time enough to start them in a frame. As to starting in their old pots, or potting them when dormant in new soil before starting, we never discovered any difference but this, that in the first case, when you report after they are fairly started, you must prepare compost that will give no check from not being warmed.

ACHIMENES (Ibid.).—Of this the same may be said, but for economy of room we generally turn out and collect their scaly tubers, and place them thickly in shallow pans, transplanting again when they have sprung. We frequently do the same with gloxinias.

CINERARIAS (Ibid.).—If you shift these now, you will injure the flower-stems that are rising. Better let them flower in the window, then cut down and shift for a succession. You must give them plenty of water if you do. Set them in saucers. See what Mr. Fish said last week. They will bloom well in small pots, if supplied with manure water.

BROKEN COMBS.—*Cuphea* says:—"One of my boxes was so rudely disturbed by a late very severe gale, that the heavy well-filled combs were shaken from the bars, and have all fallen in an inclined position on the floorboard, to which the bees have fastened them, as well as to one another."—It will be better to let the combs remain as they are; the bees will construct fresh combs upon the bars, and afterwards remove those, or a part of them, that have fallen down. The prosperity of the stock will of course be much affected by the accident.

BULBS AND BEDDING PLANTS (J. R.).—Your beds of turban, and other ranunculuses, planted in November and in January, will be ready for bedding-out summer plants in, as soon as the leaves of their present occupants begin to turn yellow. You will be rather late, it is true, but you cannot well avoid it, for if you try to get the two sets in the same bed in May you will get into a mess.

MIGNONETTE (A Constant Reader).—Long practice, more than anything else, enables the London growers to supply Covent Garden market with better mignonette than can be had anywhere else. Like every other plant requiring particular treatment, however simple, the mignonette ought to have a pit, or place devoted entirely to itself all through the winter. A one-light box, filled with pots of mignonette, would learn you more about its requirements in two or three seasons, than a whole volume of written practice; for, practically speaking, no plant is more easy to manage, and few plants are less worthy of our approbation than the generality of country grown mignonette. The seeds are sown in the same pots in which the plant flowers, early in August. In the beginning of October the seedlings are thinned out to five or six plants, as much air and light as the winter will allow is given, and very little watering in the dead of winter, with a constant eye after dead leaves, are the chief requisites.

TRANSMITTING PLANTS TO AUSTRALIA (Agricola).—We shall furnish an article on the subject very shortly.

FLOWER-GARDEN (R. L.).—The design and planting are very much to our taste, but the subject must stand over for the present.

SUNDRIES (J. T. P.).—*Manetti Rose*: nurserymen graft and bud on it indiscriminately, but the common way of budding on the Dog Rose will be the most suitable way for amateurs with the *Manetti*. *Wisteria*: You ought to prune back the two side shoots to one-third of their length now, unless the plant has filled the space you intend for it; and if it has, cut off only a third of the last growth; either way you will be more sure of a leader next year than by leaving them as they are. *Clematis asarea grandiflora*: Prune it by all means. Letting this and *Clematis Sieboldii* go without pruning, because they grow less strong than others of the family, is the surest way to lessen their vigour, and consequently their flowering. If your *Asarea* has not been more than three or four years planted, you may safely prune the strongest shoots to within a yard of the ground, and all the weak ones down close to the ground. The next summer shoots will thus come all the stronger, and flower on as they grow. We cut a five-year-old one last March to nine inches from the ground, and last summer it covered more wall than during the last three years. The flowering was in proportion. There is no known "method to prevent aphid," but tobacco water, and tobacco smoke, keeps them down when they do appear. The *Solfaterre Rose* having done well with you for three years in the open border, bespeaks well of your mild climate; but are you and others sure you have the true *Solfaterre* at all?

SCARLET GERANIUMS (Verax).—We have said all along there was no practical use in securing Scarlet Geraniums out of doors in winter, because they would grow too strong next year; but when the old roots or plants are to be dried, and to be kept dry all the winter, they keep much better if they are left out under protection till Christmas. Of course they would not keep on wet clay land. Those dried plants we recommend to be planted out early in April, *not in the flower-beds*, but in a sheltered place under a south wall, and to have good protection from frost till the middle of May, and then to have them transferred to the

flower-garden; and all this for the convenience of those who tell us they "have neither pit nor greenhouse."

DOUBLE FEVERFEW (Ibid.).—Our correspondent would be much obliged to any one for a few cuttings of the larger flowering sort.

GREENHOUSE SASSIES (Ibid.).—You are asked 1s. and 1s. 6d. per foot for these in the west of England. A good builder, near London, offered us to put up a greenhouse, rafters, glass and all, except brickwork, for 9d. per foot this week. Your greenhouse, fifteen feet long, will not be safe with the stove you mention, which, for plants, is the very worst contrivance we have. The plant you inquire about, *Celestina ageratum*, is quite common in London; you may buy ten thousand of them next May at from four to six shillings per dozen; we mean the perennial sort; it is the annual of that name that is now nearly out of cultivation.

MELILOTUS LEUCANTHA, or Bokhara Clover. Messrs. Hardy & Son, of Maldon, Essex, say "This is very attractive to bees, inasmuch, as when it blooms, they cause a general 'hum' all around each plant, as in an apiary. It grows six or seven feet high, with numerous wreaths of small white flowers. The foliage of this plant, slightly dried, becomes extremely sweet, and smells like new-mown hay, or the Tonquin bean. A small sprig kept in the pocket, or drawer, or wardrobe, is sure to betray itself by its agreeable odour. Its seed should be sown in the spring. Should your apianian correspondents be desirous of obtaining further communication on this favourite bee-flower, we shall feel happy in imparting it."

WASHING.—An old Subscriber wishes to know of "some efficient method of washing the linen of a large establishment,—a hospital,—without a regiment of washerwomen, who are most expensive servants?"

GUTTA PERCHA TRELLIS.—R. W. will be obliged by F. G. stating what is the size required, and what is the price per foot.

GOOSEBERRY.—G. S. B. wishes to know where he can obtain Jackson's *Abraham Newland*, Hepburn's *Green Prolific*, and Rider's *Scarlet Lemon*. If we required them, we should write to Mr. John Turner, Parkwood Springs, Neepsend, Sheffield. We quite agree with our correspondent that none are superior in flavour to the *Red Champagne* and *Green Walnut*. "The latter is an excellent late sort, and ought to be more extensively grown."

AVERAGE PRICE OF WHEAT (S.).—The average price of wheat per quarter in 1851, we believe, was 88s. 6d.

AGE OF SEEDS (Alpha).—It is not advisable to use seeds remaining from your stock of last year. As you have no means of getting rid of the milk of six cows, you might fatten calves or pigs with it.

SULPHUR (W. J.).—You should use Flowers of Sulphur, not powdered roll brimstone, to destroy the red spider. The fumes arising from the sulphur put upon a hot-water plate filled with boiling water, would be your best mode of applying it.

SALT AND SOOT FOR POTATOES (Omega).—Spread the mixture over the surface, and dig it in before planting. You would destroy every set if you put the mixture into the drills with them. Four pounds of salt and a peck of soot, or four pounds of salt and half a peck of lime, will be abundance for thirty square yards.

COALS (X. Y.).—It is impossible to answer your question. The consumption of a stove depends upon its size, draught, quality of coal, &c.

ATLESBURY DUCKS (H. H.).—We should ask Mr. T. Lowe, of Whateley, near Fazeley, to oblige us with a duck and drake. They are of the size mentioned. We do not think your recipe so good as that we gave, if it were only because yours contains no prepared chalk. By no means use mercurial ointment to destroy *Nec* on the calf. Sweet oil thoroughly rubbed in upon them will kill them.

NAMES OF PLANTS (A Constant Subscriber).—Your pretty little fern is the *Adiantum capillus-veneris*, or True Maidenhair. This fern does exceedingly well in the common greenhouse, and the more shaded and least airy part may be said to suit it best, and the same observation applies if it be kept in the stove. In either place it should always be standing in a pan of water. Under such keeping, it may be divided at almost any season of the year, but now is one of the best seasons for division. Though it is a native plant, it cannot be cultivated successfully upon our rockeries. A similar situation will suit your *Club Moss*, *Leopodium Helveticum*, as we take it to be from the very small bit sent. *L. denticulatum* is very nearly allied to it. (A. B. C. D.).—Your plant now flowering is the *Chimonanthus fragrans*, a very desirable shrub. We have it now in bloom against a south wall. By no means make incisions in the trunk or stems of your peach-tree below where it was budded, to cause the stem to swell out, and become equal in size to the part above from where the bud was inserted. This swelling is a common occurrence, and arises usually from the scion being of freer growth than the stock. So long as your peach-trees are going on well, let well alone. (G. R. A.).—Your plant is also the *Chimonanthus fragrans*, but variety *flavus*, or pale yellow. It is readily propagated by layers made in summer, as the plants generally put out an abundance of young strong shoots round the foot of the plant.

ACHIMENES LONGIFLORA (B.).—This may be put into heat immediately.

COTTAGE GARDENERS' DICTIONARY (A. T. R.).—This is such an improved edition of the "Dictionary of Modern Gardening," as to be really a new work.

APPLE-TREES WITH MISTLETOE (C. J. P.).—Our correspondent wishes to know where she can procure a few or one small apple-tree, with the *Mistletoe* growing upon it. At what price, and what the probable cost of carriage to Dublin would be.

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WEEKLY CALENDAR.

M D	W D	FEB. 26—MARCH 3, 1852.	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
26	Th	Clothes Moth seen.	30.326—30.212	44—23	N.E.	—	55 a. 6	31 a. 5	morn.	6	13 16	57
27	F	Ring Dove heard.	30.363—30.334	45—30	N.E.	—	53	33	0 22	7	13 6	58
28	S	Frogs spawn.	30.343—30.348	41—26	N.E.	—	51	35	1 30	8	12 55	59
29	SUN	SUNDAY IN LENT.										
1	M	David.	30.233—30.135	44—31	N.W.	—	49	37	2 36	9	12 43	60
2	Tu	Chad.	30.379—30.323	43—25	N.E.	—	47	39	3m 39	10	12 31	61
3	W	EMBER WEEK.	30.379—30.323	43—25	N.E.	—	45	40	4 36	11	12 19	62
			30.230—30.200	44—24	W.	—	42	42	5 25	12	12 6	63

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 48.7° and 35.1° respectively. The greatest heat, 60°, occurred on the 3rd in 1826; and the lowest cold, 24°, on the 3rd in 1845. During the period 98 days were fine, and on 77 rain fell.

THE science of natural history appears to have engaged the attention of men of the most gifted minds of all ages. Among the heathen philosophers there were those who studied it, and probably drew from it some of their noblest thoughts. Solomon, whose knowledge was proverbial, "spake of trees, from the cedar that is in Lebanon, even unto the hyssop that springeth out of the wall; he spake also of beasts and of fowl, and of creeping things and of fishes." And our Saviour, when discoursing with his followers, advised them to consider the lilies of the field, that they might thereby learn to trust in God. We make known our thoughts to each other by writing them upon paper, but the Almighty stamps his in indelible characters upon creation. Matter, says an ingenious writer, is mind precipitated, and it is true philosophy to study the divine mind through his works. This is the highest department of the science; and he who, in the pursuit of natural history, keeps this main object in view, cannot fail to profit largely.

Such was the aim of the individual whom we have selected for our present biographical sketch—DR. JOHN FOTHERGILL. He was born at Carr End, in Yorkshire, in the year 1712, and received his early education at a school in Sedbury, in the same county. At the age of 16 he was articled to Dr. Bartlett, an apothecary at Bradford. Here his genius, guided by the sound Christian principles implanted by his parents, unfolded itself; he was naturally of a mild and amiable disposition, and fond of study; he read much and carefully, and proceeded methodically, taking care to digest what he acquired, so as to make it his own; by this means he laid in a stock of valuable information that was of great service to him in his subsequent career. His assiduity and close habit of observation advanced him in the estimation of his preceptor, and induced the latter to place under his immediate charge a large class of his patients, by which means he became rapidly and *practically* skilled in the exercise of medical science, whilst his courteous and obliging manners gained for him the respect of all, and particularly of the poor, by whom he was never afterwards forgotten. At the expiration of his apprenticeship he went to London, and became a pupil of Dr. Wilmot, at St. Thomas's Hospital, and subsequently graduated and took his degree at Edinburgh. The university chairs were then filled by Drs. Munro, Alston, Rutherford, Sinclair, and Rimmer, whose lectures he diligently attended. Here he scrupulously avoided the frivolities and dissipation too often attendant on academic life, and diversified his pursuits by the cultivation of general knowledge, selecting the useful and the ornamental. From Edinburgh he travelled to Leyden, and other parts of the continent, to complete his studies, and in 1740 he took up his residence in Lombard-street, and commenced practice as a physician. Here he found the good name which he had acquired among his friends at Grantham of signal service; it was a means of introducing him to several patients, and laid the foundation of a lucrative practice.

Few men have more honourably and successfully maintained a merited reputation, and he did this during a period of about forty years. He regarded the practice of medicine, not as a trade to get money by, but as a valuable talent with which he was intrusted for the good of mankind, and felt it to be his duty to exercise the talent, whether he received fees or not. Wealth, which too often narrows the mind, enlarged his, and evidenced the Christian principles by which his conduct was regulated. The gratuitous medi-

cal aid he bestowed on the poor was great, but it was viewed by him as a profitable part of his practice, for it yielded to his benevolent mind a satisfaction that wealth could not purchase—his reward was in his work, and he felt the value of it. With those patients whose pride or modesty led them to conceal their poverty, he would (that a gift might not offend them) suggest their performance of some little service, for which he took care liberally to reward them—thus making it to appear that it was their own act, and not his bounty, that contributed to their relief. With others in necessitous circumstances, and whose feelings were not so sensitive, it was usual with him, when paying his last visit, under appearance of feeling the pulse, to slip into their hands a sum of money, or a bank-note; by this mode of assistance he is said, in one instance, to have conveyed £150. He had the heart to feel for, as well as the skill to alleviate, the numerous patients who came under his care.

In a few years his professional duties, added to his public and philanthropic engagements, so increased, that Dr. Fothergill began to desire some rest and recreation from the daily bustle of London life, and accordingly fixed upon a spot on the Surrey side of the Thames, which appeared to him to offer the advantages he sought. He agreed with the owner for the purchase, but when about to complete the contract, he was informed that the loss of the place would involve the tenant and his young family in probable ruin, upon which the doctor observed, "*that that could never afford gratification to him which entailed misery on another*;" and he made the poor man a present of the intended purchase money, and abandoned the project.

Shortly after this, in 1762, he bought an estate of 30 acres, at Upton, near Plaistow, about five miles from London, and here carried out with zeal his various plans of horticulture and floriculture. The grounds which lay round the mansion were planted with ornamental trees and shrubs, chiefly of American growth, and procured from a Mr. Grays, at Fulham, who was then largely introducing them. To these he added others from different parts of the globe, altogether to the number of near 3000. Within the garden, which was walled round, and contained about five acres, was a crescent-shaped piece of water, nearly dividing it into two parts; here the doctor shewed that he had taste to plan and energy to execute, and few things are impossible to genius and diligence. A line of plant-houses was erected 260 feet long, leading from the house, and these soon blazed with the rare and beautiful plants of the tropics. Through the agency of his numerous friends and patients they increased daily; scientific men in our colonies, and the captains of vessels going abroad, were enlisted into his service. To the latter he frequently offered considerable sums to procure for him plants which were then unknown in this country; for instance, he promised £100 each to two captains to bring him a plant in vegetation of the true Winter's Bark, *Winterana aromatica*, from Patagonia. He also joined with two or three of his friends, who had similar tastes to his own, in sending out a collector to Africa. He had an agent in China, and his early associates, Dr. Russell, of Aleppo, and Dr. Kerr, of Calcutta, aided him by their contributions. But his mind turned most to those vegetable productions which contributed to our *Materia medica*, or were otherwise useful. The tea, coffee, cotton, bamboo, nutmeg, clove, *Mimosa japonica*, or tree producing the Terra japonica, scammony, and a host of others, all flourished in his garden at Upton; and he not only studied these himself, but employed artists

to draw them, and obtained chemical analyses of their various products. His portfolios of flowering plants, sketched from those in his own conservatories, were very valuable, and served to promote science, and diffuse the love of horticulture. He was truly a patron of the art; and the talented president of the Royal Society, Sir Joseph Banks, writing of Dr. Fothergill and his gardens, says—"At an expense seldom undertaken by an individual, and with an ardour that was visible in the whole of his conduct, he procured from all parts of the world a great number of the rarest plants, and protected them in the completest buildings which this or any other country has seen. He liberally proposed rewards to those whose circumstances or situations in life gave them opportunities of bringing hither plants which might be ornamental, and probably useful, to this country, or her colonies, and as liberally paid these rewards to all who served him. If the troubles of war had permitted, we should have had the *Cortex Winteranus*, &c., &c., introduced by his means, and also the bread-fruit, mango-steen, &c., into the West Indies. For each of these, and many others, he had fixed premiums." Sir Joseph, after enumerating the various means he adopted to procure specimens, and the success attending them, further remarks, "In my opinion, no other garden in Europe (except Kew), royal or of a subject, had nearly so many scarce and valuable plants. That science might not suffer a loss when a plant he had cultivated should die, he liberally paid the best artist the country afforded to draw the new ones as they came to perfection; and so numerous were they at last, that he found it necessary to employ more artists than one, in order to keep up with their increase. His garden was known all over Europe, and foreigners of all ranks asked, when they came hither, permission to see it, of which Dr. Solander and myself are sufficient witnesses, from the many applications that have been made through us for that permission."

A beautiful *Andrachne*, raised from seed sent by Dr. Russell, of Aleppo, flowered for the first time in Europe in these gardens, and the plant was sold at the owner's death for £53 11s. But the doctor's genius was versatile, and his collections of shells, minerals, fossils, insects, and other objects of natural history, were equalled by few; like his plants, they were systematically arranged; and a visit to Upton furnished not only a rich treat to the curious observer, but a means also of improvement to the scientific student.

Without doubt, the most prominent feature in the doctor's character was his benevolence. He was, in the truest sense, a philanthropist. Apart from the numerous personal cases which he relieved in the course of his medical practice, he became a warm supporter of, and liberal contributor to, most of our principal public institutions, and even to some abroad. With him originated the foundation of Ackworth School, a seminary for the children of parents not in affluent circumstances among the Society of Friends, of which denomination he was himself a member. This school still prospers, and educates annually about 300 pupils, of both sexes. He associated with Howard in the reformation of prisons; laboured to introduce many salutary and sanatory regulations into the city of London—as public baths, cemeteries, the better supply of water, food, &c. War and slavery he deprecated as national evils, and exerted his influence to suppress them. He concerted plans with Dr. Franklin, then a plenipotentiary to England from the United States, which they presented to the Minister of Foreign Affairs, to prevent the impending war with America; and which, had they been adopted, would have spared thousands of lives and millions of treasure

to both countries. In truth, seldom a day passed that did not find him engaged in promoting some plan of benevolence, or performing some deed of charity. He early discovered the truth of the assurance, that "it is more blessed to give than to receive," and that it was this blessing which furnished him with the means of his liberality. It deserves to be mentioned, that when Dr. Knight, librarian of the British Museum, fell into pecuniary difficulties, owing to some mining speculations in which he had engaged, he waited in his distress upon Dr. Fothergill, to whom by reputation he was known, and stated the sum of which he stood in need, adding, that it would be the means of rendering him completely happy; the Doctor smilingly observed, that "he would then make him so," and he drew him a cheque for 1000 guineas! Jeremy Taylor quaintly remarks, that "liberality should have banks as well as a stream;" with Dr. Fothergill it *had* banks, but the stream was deep and wide. It is stated upon good authority, that during the last 40 years of his life, he gave away in charity £3000 annually!

As a writer, Dr. Fothergill was not conspicuous; he wrote several medical treatises, two or three biographical notices, and contributed various papers of public interest to the periodicals of the day; and he was a member of most of our leading scientific and philosophical institutions, as also of some foreign ones. He continued his medical practice with uninterrupted success till 1778, when disease obliged him to give up part of it, and he finished his useful life December 26th, 1780, aged 68. His remains were interred at Winchmore Hill, 12 miles from town; seventy carriages followed in procession, and a considerable number of his friends and the public were present on the occasion.—S. P., *Rushmere*.

In addition to the foregoing, we derive the following from another source:—"Some time before his death he had been industrious to contrive a method of generating and preserving ice in the West Indies. He was the patron of Sidney Parkinson, and drew up the preface prefixed to his account of the voyage to the South Seas. At his expense also was made and printed an entire new translation of the whole Bible, from the Hebrew and Greek originals, by Anthony Purver,* a Quaker, in 2 vols., 1784, fol., and also, 1780, an edition of Dean Percy's Key to the New Testament, adapted to the use of a seminary of young Quakers, at Ackworth, near Leeds, in Yorkshire, founded in 1778 by the Society, who purchased, by a subscription, in which Dr. Fothergill stood foremost, the house and an estate of 80 acres, which the Foundling Hospital held there, but which they found inconvenient for their purpose on account of distance. The Doctor himself first projected this on the plan of a smaller institution of the same kind at Gildersomes. He also endowed it handsomely by his will. The fortune which Dr. Fothergill had acquired was immense; and, taking all things together, the house and moveables in Harpur Street, the property in Essex, the estate in Cheshire (which he held on a lease), and his ready money, the computation must be £80,000. His business, when he was in full practice, was calculated at near £7,000 per annum. In the *influenza* of 1775 and 1776, he is said to have had sixty patients on his list daily, and his profit was estimated at £3,000 per annum."

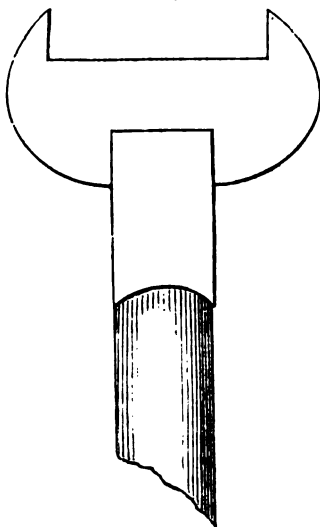
* This man deserves to be added to the list of unlearned mechanics, who by dint of application have acquired a knowledge of the learned languages, beginning with the Hebrew, and proceeding to the Greek and Latin. He was bred a shoemaker, with a serious turn and desire of enquiring into the religious sentiments he had imbibed in his youth. This work is said to have cost the Doctor not less than £2,000.

NUMEROUS letters addressed to the late Mr. Forsyth, of the Royal Gardens, have recently been discovered. They are from Sir Joseph Banks, and many other distinguished scientific characters, and are full of interesting information. Their owner has most kindly placed them at our disposal, and we hope immediately to commence their publication in these pages.

Our request for information relative to horticultural implements, has brought several communications relative to *Garden Scrapers*, from which we have selected the two following:—

"Who likes to see a garden-walk smothered with clods and dirt? It must be so, however, unless, on emerging from the quarters, one can scrape one's shoes. A kind neighbour is a great lover of his garden, which when I was looking over last spring, among other things I observed, lying prostrate on the border, a scraper! A loan of that

instantly-coveted construction was requested and granted. The smith—our representative here of that important myth, Vulcan—would have made a capital hand to assist at the forging of Jove's thunderbolts; though under what other name to place him there than Mr. Vulcan himself, I am at a loss to discover. Cyclops will not do, for we learn those subterranean assistants had but one eye in their heads! whereas our smiter of the anvil has two; at all events I often envy his Herculean muscular proportions. His skill very soon satisfied my desires, and a scraper at each corner of the walks is the result. I have seen a good many varieties of scrapers in my time, but none that pleased me so much as this simple, unpretending specimen. It requires, I think, only to be known to be appreciated."

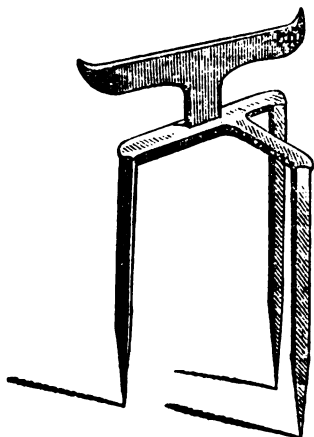


Oak leg, or stem, 1 ft. 4 in. long, and 2 in. diameter, tapering to a point. The top is bound with an iron ferrule, with a tapering slit in it to receive the blade. The entire length of the blade is 2½ in.; its depth, 2½ in.; its thickness, a quarter-of-an-inch tapering to an eighth; space for admitting the sole to be scraped, ¼ in. wide and ½ of an inch deep.

The other is from J. H. Payne, Esq., of Bury St. Edmunds, who says of it—

"I herewith enclose you a drawing of a garden scraper, which was invented by a gentleman's gardener in this neighbourhood a few weeks ago, and it appears to me to be too simple and efficient a thing of the kind (a really good one having never before made its appearance) not to be made public."

It has the extra advantage of being easily moveable and fixable wherever most required. Length of the three feet, 18 inches, and one inch broad by half-an-inch thick; length of the scraping blade, six inches. It is all of iron.



GARDENING GOSSIP.

We have been obliged by the following from the very worthy Rector of Compton, near Winchester :

"My attention has been called to No. 170 of *THE COTTAGE GARDENER*, bearing date January 1, of this present year, in which you allude to a walk you had taken in August last, with two sapling pilgrims, through the green lanes of Silkstead, near Winchester, in the hope of discovering some traces of old *John Taverner*, who, five half centuries ago (are you correct in your date? *), told of his experiments on Fish and Fruit. You express your disappointment at not being able to discover any notice of the aforesaid John, or of his connections, in the registers of the Church of Hursley, an adjoining parish. The fact is, that the part of Silkstead in which the Harris family resided, one of whom married John Taverner's sister, or daughter, is situate in the parish of Compton. There are several memorials of the family, both in the church and churchyard; and from an inscription on a slab of black marble in the chancel, it appears that a son of the above lady was buried beneath it; there is also a mural tablet, in Latin, to the memory of the same person, within the communion rails, under a larger one, to Dr. Harris, who was Warden of Winchester College. You are in error with regard to the house, which no longer exists. Its last inhabitant was a Mr. Travers. About half a century ago the property was purchased by, I believe, the grandfather of the present Sir Wm. Heathcote, and the house was entirely taken down within the recollection of several persons now living in this parish."

EXTRAORDINARY EFFECTS OF FILTRATION. — It may appear strange, but the following is "not more strange than true," that at the Sewage Company's Works at Fulham, the most offensive drainages of a London sewer are put to filter, and come out pure; nobody who tasted it in ignorance could tell it was not drawn from a river, and the simple medium through which it filters is peat charcoal powder, which becomes saturated with all the elements of stimulating manure; and this is known by the water losing its brilliance.

The surcharged peat is doubly valuable as a stimulant, and must be carefully used. Like guano, it should be mixed with twice its own bulk of sand, or very light soil, and be sown on the ground at the rate of five hundred weight to the acre; and, unlike guano, it is not soluble in water. The only danger in using it, is its touching the plants; therefore, if sown in drills, there must be a little soil between the manure and the seeds. It is best sown on the ground before planting or cropping, and washed in with two or three showers of rain, or one or two good waterings. Seeds may then be sown, because some of the strength will have been washed below. We, therefore, consider that a most valuable manure, more valuable than can be obtained in any other form, may thus be secured from the filth that has been allowed to pollute the rivers; and our hope is, that it can be made in sufficient quantity, and at such moderate prices, as to become generally useful. It may be worth while to notice that the filtered water is of a quality to induce the manager to contrive some means of saving it, while the charcoal is so rich in salts that it cannot be dried even on hot plates. It is understood that the saturated charcoal may be sold at the same price per ton that the Irish Society charge for the charcoal in the first instance, and that the difference of weight, after saturation and partial drying, gives sufficient profit.

Covent Garden is literally glutted with splendid *Cut Flowers*, for which great prices are given to gentlemen's gardeners among others. Consequently, among the productions may be seen some of the most costly orchideous and other stove plants; rarities not to be found in the trade, and if they were, would be kept as show

* Yes, we are correct; for John Taverner's *Certain Experiments Concerning Fish and Fruit* were published in 1600.—ED. C. G.

plants. Ladies and gentlemen themselves, too, are among the sellers of cut flowers at the shops in the middle row.

Mr. J. E. Adams writes to us as follows, from Kingsbridge, in Devonshire:—

"We have been much pleased to find such a periodical as *THE COTTAGE GARDENER* devoted to bees as well as other things. We have a little *Bee Society* in our neighbourhood, and have an annual exhibition at Plymouth, in the Botanical Gardens, when we distribute prizes, about £10, to cottagers, for the largest quantity of honey taken on the most humane principles. George Fox, Esq., of our town, is secretary. I have kept bees many years, and have now thirty-five stocks in almost every kind of hive. My experience corroborates your article on queen bees in your periodical for this month. When we purchase swarms we ought to enquire if the stock swarmed the previous year, to prevent having old queens to commence with. I took a family of bees out of an old chimney, four years since, and the swarm took possession two years previously to that time, and it is now in a box as strong in numbers as either one I have. They may have produced a queen from worker brood I know, but to me the longevity of the queen bee is doubtful.

"I am quite of opinion that bees work more diligently in shallow hives; to benefit by which we have constructed what we call an *adjusting hive*, as follows:—The stock is eleven inches and five-eighths square, and ten inches deep. The adjuster is fifteen inches deep, slips easily over the lower box, and rests on a ledge of an inch-and-three-quarters deep, running around the base of the stock box; allowing, when down, a space of seven inches between the bars of the respective boxes; being sufficient to prevent swarming. A rack on each side of the stock box catches in the adjuster, sustains it at any elevation, and a pin attached to the catches relieving them when required to be lowered. There are three windows in the adjuster; the one at the back of sufficient length to command the one in the lower box when the adjuster is resting on the raised ledge; a sliding shutter closes the window in the stock hive, when the adjuster is raised above it. The principle on which this hive is constructed, renders it well adapted for the greater or less prosperity of the season. If a poor season, the space of seven inches alone may be filled up; if a tolerable season, the adjuster may be partly raised; or, if a good season, it may be raised to the whole height. One of my adjusters may be seen at Mr. Marriott's, 75, Gracechurch-street, London. I have enclosed a pattern of one of my *Unicomb* hives, which I can supply. Our last season was scarcely a middling honey season."

We hope to be favoured with more particulars concerning these hives.

We very much regret receiving the following from a correspondent:—

"Upon looking over your number for February 5th, I see there is a letter from one of your correspondents, signed 'A Thinking Gardener,' and some time back he wrote to you as 'J. A.' On the 4th of the present month, the writer of that article was taken from us by the hand of death. His name was *James Arnold*, late gardener to Edmund Round, Esq., of Springfield, Essex. I may say that he was a man greatly respected in his profession, both for his skill and gentlemanly character."

REST-PRUNING.

(Continued from page 208.)

THE APRICOT.—We have always advised, in conformity with the habits of some fruit-trees, spring-pruning for those which, occasionally blossoming on the young wood, present a difficulty to the inexperienced, that difficulty consisting in the close resemblance of the barren and the fruitful shoots, until the returning spring compels them to throw aside their disguise. Among these may be placed the *Apricot*, *Fig*, and *Nut*; and as a connecting class between these, and

those which are in the main confined to spur-bearing, may be added the *Plum* and the *Pear*.

It is now high time that the apriots were pruned. Snags, as they are termed, are frequently produced by these trees; such snags being the remains of the summer's stopping or pinching of the breast shoots. These generally produce a cluster of buds at their base, which, although not blossom-buds at present, most frequently become such, and must be carefully preserved. All these "snags" must be reduced to the very point where the cluster of small buds here alluded to present themselves; and if no buds appear to be organized, we cut them down to the base, unless the part is bare of shoots, when they may be reserved for the production of succession wood. Such snags being removed, the next point is to look over the young shoots of last summer, and determine whether they are wanted in their respective situations. And here we must distinguish between leading shoots and mere side-shoots. Of course all leading shoots necessary to carry out and complete the form of the tree will be preserved; and, indeed, any, although not to be considered permanent ones, which are requisite to cover bare portions of wall or trellis. Such being reserved, the remainder may be shortened-back to within an inch of their base, in the hope of inducing the development of spurs. And now, as no shortening-back is required with the apricot, unless for some special reasons, the main shoots may be fastened carefully down all over the tree.

The "special" reasons adverted to are these:—Young trees, possessing only a few shoots, must be shortened, in order to produce more shoots to fill the wall; and our practice is to shorten the centre portions of the tree, laying in the right and left lower portions at full length. The centre of the tree thus becomes a nursery of young wood for three or four years, and that portion is relieved of its superfluity by continuing to draw them downwards, right and left, until the wall is full, when, of course, shortening may cease, and the very centre of the tree is the last to be complete. Every body knows the maxim applied to hedges—"Always make the bottom before you make the top," and this applies equally to our trained trees. By this practice it will be found, that by the time the centre is complete, the lower parts, right and left, are become very substantial, having had the chief appropriation of the sap for two or three years; they, indeed, become so stout by this practice, that no wild centre shoots can ever "lord it" over them more. Were this practice followed with trained trees in general, we should not meet with so many gaps and blanks on walls; such are a blemish to our gardens, and loudly proclaim either that the gardener's system is not complete, or that system is not appreciated by him.

Well, then, the snags are cut, the leaders all fastened; what next? We can now fancy an enquirer asking what is to be done with all the young shoots that are produced on the surface of the tree. We here find that we have written somewhat unguardedly in the earlier part of this paper in saying "the remainder may be shortened-back." What we really meant was those not proper for tying-down, or not needed for that purpose, for we must beg to recommend the same kind of tying-down for the apricot as for the peach and plum, that is to say, when and where natural blossom spurs do not exist in abundance. Let all the shortest-jointed wood be selected for this purpose, and this tied down on the naked portions of the older wood, the remainder may be spurred-back, as at first suggested.

To complete the proceedings, let a vigilant hunt be made for the eggs of the Red Bar moth (*Pedisa angustiorana*), a description of which will be found in *The Cottage Gardener's Dictionary*. These eggs are in oval clusters, about the size and appearance of a large seed of the parsnip, each patch containing some three or

four score eggs. These crushed now, will save the trees from those ruinous depredations which the caterpillars commit if left uncontrolled.

PEARS.—As we have to hasten to other important subjects shortly, we must draw our "rest-pruning" papers to a close. The pruning of the pear, according to our practice, has so many features in connexion with the apricot and the plum, that a few hints will suffice. Such refer chiefly to trained pears. When we say trained, we except the pyramidal forms, so much and deservedly recommended by Mr. Rivers, for general purposes, in our more southern counties; an exception more in point of form than as involving any principle.

In our practice, removing anags is the first point; of these there is sure to be plenty, unless the trees are in a very humble state. All such may be cut away as suggested for the apricot, leaving of course the base of all those which possess symptoms of natural spurs. Those which do not, may be cut clear away. And now a selection must be made amongst the young spray; the shoots of the preceding year which has been reserved. Above all fruits the pear has, as we think, the most distinct character in its young shoots. This is not manifest in every kind alike; but in the majority of cases three distinct kinds may be readily discovered on a careful examination: when we say kinds, we of course mean as to outward appearances. There will be long-jointed weak shoots, long-jointed gross shoots, and short-jointed compact shoots.

Now, to those who do not yet comprehend these practical marks, we say, if you feel an interest in the subject, just look over your trees, collect a shoot duly representing each of these classes in the extreme, and give them ten minutes close study. In all cases, the shorter the joints or internodes, the more fruitful are they likely to become in the least time.

We were examining the wood of various pears this very evening, with a view to exhibit the character of the three kinds of wood (on the average) here alluded to; we find that the eyes of long-jointed weak shoots are from one-and-half to two inches apart; the long-jointed and gross from two to two-and-half, and the short-jointed compact shoots average half-an-inch.

Now, since all practical men have agreed from time immemorial as to the varying tendencies of shoots, varying so much in character, the propriety of a careful selection is obvious; and equally plain it is, that since "the knowledge of a disease is half its cure," the subject is deserving of a most grave enquiry by those who would advance in fruit culture.

To revert to the digressive point, "a selection must be made." It will be seen here, that we are advocating the tying-down, or otherwise fastening, a succession of young shoots annually; such we tie on the principal stems or leaders. Most of those which possess the short-jointed character before alluded to, may thus be treated, taking care that they be not too thick, or the intensity of shade will tend to defeat the object. Of course all superfluous shoots, although eligible, must be pruned clear away. We have many trees which have been thus treated for years, and on the main stems of such may be seen what might be termed bundles of spurs of an elongated character; in fact shoots intermediate between the natural spur and ordinary wood. Such, when two years old, are almost certain to prove fruitful. If such are very short-jointed, they may be tied or nailed very close together, say half-a-dozen in a yard's length, although we do not confine ourselves to any fixed number. No shortening-back of the leading shoots is requisite, unless for some specific purpose.

B. ERBINGTON.

PACKING TREES FOR THE COLONIES.

We are again pressed for information about the transmission of fruit-trees, &c., to New Zealand, Australia, and other colonies. "I am led," says a correspondent, "by my connection with these countries, to request that you will give the subject your full consideration, and the benefit of it to your subscribers at your earliest convenience. I am sure that great difference of opinion exists among practical gardeners and nurserymen on the subject. My son, who is settled in Australia, wrote to me two years ago, requesting me to send him the best varieties of pears, apples, plums, &c., &c. He directed me to lay the roots on oven-dried sand, and to cover each successive layer with the same, confining the sand in a close box of rough slabs, with a packing of moss, and protecting the spray of the plants with splines (small pieces of wood) nailed at intervals, so as to admit the air to them. The first nurseryman I consulted told me I must reverse this plan, and pack the roots in wet moss, shredded fine, and packed as close as possible round the roots. A second assured me he was in the habit of sending large quantities of fruit-trees to New Zealand, and that he sent the roots puddled in well-wetted clay. A third said that nothing but a Wardian case would secure the plants living through their five months' voyage, and its various trials. The expense of this, in my case, and for so large a number of plants as I wished to send to my son, was out of the question. I must, therefore, choose between the wet clay and wet moss, and the dry moss and sand. If you can relieve me by your advice, &c., in your widely-circulated journal, you will be conferring a great boon on me, and others situated as I am, &c."

Now, I may affirm with confidence, that there is no subject on which we treat in *THE COTTAGE GARDENER* of which all of us know less, practically, than this. I have myself packed plants for the Cape of Good Hope, for India, and to many other foreign parts, and with considerable success, but, although I often requested special reports on each subject, and on every style of packing I adopted, I never could get at the whole truth, at least not so far as to warrant me to prefer this or that mode of packing as the best, and it would appear, from the privacy of English firms, who import largely from the most distant parts, that there is a kind of rivalry among them, if not a jealousy, as to who is to be the most successful in the race, so that we are not very likely to be much assisted in our present enquiry from this source. Yet the experience of foreign settlers, who receive consignments of plants, and that from these firms, if we could but get hold of it, would be far more valuable than our best-laid schemes grounded on theory, or even on our own knowledge of the requirements of plants under the particular circumstances.

Mr. Fortune, who was sent out to China, first by the London Horticultural Society, and afterwards by the East India Company, took out with him a great number of plants, and also brought home with him, and sent before him, a still greater number in very good preservation, and his experience in packing and shipping for different countries is equal to that of any of our best private collectors abroad. He is the only one that I know of, who has written a minute account of all his plans under the most recent improvements; and every one who is interested in the subject ought to read his accounts, which are published in the journal of the Horticultural Society, particularly in a paper in the vol. for 1847, page 115. The only drawback in his experience, for general purposes, is, that the whole is on the Wardian principle, and, therefore, too costly for most people, as our correspondent says. In a thoroughly close Wardian case, according to Mr. Fortune's experience, not a drop of water is lost from here to China.

When I first read of this, I tried an experiment on purpose to prove how far the same ends could be obtained by different means, and with the sole view of solving the difficult problem of transmitting trees, &c., to Australia, and I think that I have succeeded so far as to make the plan as easy as it is possible to make it. My experiments were tried on geraniums in a growing state, and they are not the easiest things in the world to deal with in this respect; but I am almost certain that I could take a thousand of them out to New Zealand without much loss, and if so, surely a few hundreds of fruit-trees might easily be managed on the same principle, and that principle is involved in the above extract from the letter of our correspondent, in that part which refers to the wet moss. By a very simple contrivance I kept moss perfectly damp round the roots of a dozen geraniums, in separate parcels, from September to the end of March; and I am quite sure that I could so manage, as to keep the moss damp enough for any roots all the year round; and not only that, but I am perfectly satisfied that I could carry a lot of mixed plants from any part of the world to any other part, with much less risk than can be done by the best Wardian case that ever was made.

As soon as a well-managed Wardian case gets into the latitude of Madeira, it begins to fill with hot vapour in the day time, and this vapour condenses into a shower-bath every night, and this goes on until you reach a long way beyond the line or equator, and we all know that moist, hot, close air will set plants growing in our hot pits in the dead of winter. How much more so, therefore, within the tropics; this is the great difficulty, and an insuperable one, under Ward's system. Mr. Fortune found it so, and he gives excellent advice how to manage the plants all the time they are in this stew; but then his directions, to be of any avail, would require a person to go on board on purpose to attend to this very thing, and that would be like writing a letter and going with it yourself. Now my experiments with the geraniums were tried purposely to get over this very difficulty, and I have got over it. Geraniums, and all other plants, may now be carried about in Wardian cases, or without them, and be kept perfectly damp at the roots for many months, without a possibility of vapour, dew, or even the least dampness, appearing in the Wardian case or the packing-box all the time, and any one may prove the experiment before sending off plants, or merely to satisfy curiosity. Indeed, I should be gratified to learn that many of our readers had tried the experiment for the curiosity of the thing, and that they would let us know, in due time, how far they succeeded, in order to put the question on a proper footing for the use of foreign settlers as soon as possible.

The autumn is the proper time to pack plants for distant settlements, and also the right time to put the following experiment to the test, but it might be tried even now for some things. In September, 1848, the geraniums alluded to were growing in pots; they were pruned in the usual way, and allowed to break, or come into growth, and when they were ready to be shaken out of the pots, for being changed into smaller ones, they were put under the following process: all the soil was shaken from the roots, and all the roots were preserved whole; they were carefully disentangled from each other, and as carefully coiled, separately, in a ball of fresh moss from the woods, the quantity of moss allowed for each plant being as much as I could conveniently hold in both hands, or say a ball four or five inches in diameter. Each ball was packed as tightly as I could make it without bruising the roots, and the moss was nearly dry. Some balls were tied round with copper wire, some with small twine, and some with soft matting, and when the whole were finished the balls were soaked in water till they had sucked up as much of it as the

moss would hold; part of the water was then squeezed out, but not much, and each ball was enveloped separately in a perfectly air-tight envelope; strings were then tied half-way up the plants, with loops at the ends, by which the plants and balls were hung on nails all that winter, some in a dry seed-room, where very little light reached them, some in a living-room, with plenty of light, and others inside a south aspect window, close to the glass while there was no frost, and all of them were kept very carefully from frost, but in every other respect the whole were allowed to take their chance. With the exception of two in the seed-room having lost a little of their tops by withering, because the place was too dry and dark, all of them lived out the winter just as well as if they were in pots and in the greenhouse, only they did not grow much. In March they were unpacked, and the moss was nearly as wet as when put up last September, and I am sure that little of the moisture was lost by evaporation. Every one of the plants made fresh roots, which spread through and through the moss, and I could not see that those in the seed-room made fewer roots than those kept against the glass of the window.

Now, can we suppose any cause which would prevent these geraniums arriving quite safe to New Zealand, if the stems were kept perfectly dry, and away from the influence of the air, as in a Wardian case, the balls being well packed in the bottom of the case in carpenter's shavings, or in any other dry, light material, or without a Wardian case, but in a strong wooden box, quite in the dark; I think the latter would be the safest plan, as offering no excitement to growth, as the glass would be sure to do more or less while the vessel was within the tropics. If a gardener, or any person well versed in the management of pot plants, were to go out with a lot of plants under this system, a Wardian case would of course be far preferable, because he would attend to them just as if they were so many plants in a greenhouse—open the case to give air at all times, and warm showers when they offered; as soon as he reached the hot latitudes he would give Midsummer treatment—air very early and very late, and a slight shading while the sun was fierce, and so on, but in every other instance, darkness and freedom from air, or any changes, as far as possible, would be the safest way.

I cannot conceive how fruit-trees on a voyage to New Zealand could be benefited by being packed in damp moss, unless the moss was bound up *air tight*. One would rather suppose the wet moss would be injurious, because in less than three weeks after leaving England the vessel would get into a climate sufficiently hot to cause the moisture to rise into hot vapour, and be soon lost altogether in a rough box.

The air-tight material that I used for covering the balls of wet moss, I received from the Botanic Garden in Calcutta a few months previously. It was a fortnight longer on the way than the usual course of the overland mails, owing to some oversight by the person entrusted to see it on board the vessel. Yet, many little bits of orchids, not better than cuttings, were quite fresh in this material when I unpacked a set of little wicker baskets in which the whole were put up. It was a kind of coarse linen cloth, smeared on both sides with wax or some composition of a waxy nature; any piece of this cloth would hold water like a bladder, and after doubling up a square of it round the balls, I fastened the edges so firmly round the stems of the geraniums, that I could not squeeze out the least moisture from the moss.

Since then I have tried other means to secure the same ends, with which I am satisfied, and next week I shall relate them. Meantime, I would confidently recommend the principle for packing fruit-trees, &c., destined for long voyages; I would choose dwarf trees two years old, from the graft or bud, cut in the strongest roots, en-

velope them *singly* in moss, just as these geraniums were done, and their heads I would prune close, then I would lay down two of the longest of them, head to head, and measure their length, and then make a strong wooden case to accommodate the length of this two; the width and depth of the box would be according to the number of plants. I would pack them thus—put a row of trees, side by side, across the bottom of the box, placing the balls against the end, and jam this row or layer as close together as I could, then place a strip of wood across the middle of the balls, press it down, and nail it to the two sides of the box, driving the nails from the outside. Then another layer, another cross piece over, and so on till that end of the box was full, and I would pack the other end the same way; all the heads of the trees would thus point to the centre of the box, where they would almost meet. As the packing went on, I would fill all the empty spaces between the heads of the trees, and between the balls, with dry shavings from the carpenter's bench, and when the whole was finished, and the lid nailed down, you might throw the box from the top of the Monument, without disturbing the contents, if the box itself could withstand the bounce.

D. BEATON.

MANAGEMENT OF CAPE HEATHS.

(Continued from page 271.)

SUBSTITUTES FOR POTS AND POTTING.—The grouping system in our flower-gardens has done much to break in upon time-honoured systems and observances in the growing of plants. The first turners-out of calceolarias, geraniums, verbenas, &c., would never have dreamed of doing so before the plants had been nursed and petted with pot treatment. Old large plants were, therefore, a consideration. It would be seen that not long ago a friend and subscriber criticised me for saying anything at all as to preserving old plants, when young ones did so much better. I feel confident the practice he recommends will succeed perfectly with him. What would some of our old worthies say, to see thousands of these tender plants struck in autumn, pricked out, transplanted again in spring, if too thick, and moved easily in May to the flower-beds, without ever seeing a pot at all, and yet growing better than if all the labour of potting and re-shifting had been rigidly adhered to. Yet, this practice which saves in material, and saves greatly in labour, is, with the help of various contrivances, becoming every year more prevalent.

But why introduce this matter in the middle of a discussion on the culture of Cape Heaths? For two reasons—first, though from various circumstances, such as distance from heath soil, I have not been able to do anything in that way myself, I nevertheless believe, that the day is not far distant, when we shall find a *Heathery* in our flower-gardens as common as a *Rosary*. For such a department of the garden, we have many hardy, and nearly hardy Heaths, but to enable the heathery to vie with the rest of the garden when in its greatest beauty, we must rely chiefly on the summer-flowering Cape varieties. Secondly, before we can generally use these plants for out-door decoration, we must procure serviceable plants more cheaply, and be enabled to preserve them with less labour, than the constant attention to them in pots, such as I have described would involve. Many keep up their gardens with prince-like liberality, yet the prevalent feeling is to have the greatest amount of pleasure, at the cost of the least possible outlay. The question under such circumstances, is not, what do we think? but, what are we to do? The treatment, so far as we have gone, will be the most suitable for small private establishments; that to which we shall for a moment refer, would, we think, be the most profitable, where great numbers, rapidity of growth, either for sale,

planting out, or placing in pots for the greenhouse, combined with the least trouble, were the several considerations.

Keeping these objects in view, I should proceed, so far as the propagating is concerned, exactly as recommended in former papers; but when the pricking-off season came, I would have long, narrow, shallow earthenware boxes, instead of small pots or shallow round pans. Our excellent co-adjutor, Mr. Robson, mentioned some circular drain tiles as excellent things for sowing peas, &c., in. These I have used many years, not only for this purpose, but for propagating all kinds of half-hardy and tender plants. Now, I should prefer earthenware boxes about the size of drain tiles, but with a flat base instead of a round one,—say, length, nine to twelve inches; width, two-and-a-half to three inches; depth, three inches inside measure, made thin and light, with several holes in the bottom. My experience, even with drain tiles with their ends filled up, warrants me in stating that when once such oblong vessels come into use for all sowing and pricking-out purposes, pots and round shallow pans would soon be out of date. Now, it is necessary that small plants, such as rooted heath cuttings, should be *first* pricked-out in moveable vessels, that we may place them where we choose, either to encourage growth, or to give them a hardening-off process. In placing two rows of young plants, one row close to each of the sides of these vessels, the plants have all an equal chance. But in what are they superior to small pots and largish, round, shallow pans? They are superior in economy to both, in standing close side by side, either in a pit, or on shelves, and thus not one inch of room is lost, as must be the case with circular vessels; and then, again, they are superior to small pots, in being not so liable to heats and colds, parchings and delugings, while the plants also escape the dwindlings and dampings which not unfrequently assail those placed in the centre of round pans. Rapid growth, economy of space, and a minimum of attention, are thus secured.

As soon as these little plants had well filled their space, we should have a bed ready for their reception, managing it so that the planting-out, if possible, should take place in the early summer or late spring months. Here I wish my pen was in the hands of a Beaton or an Appleby, for I have not done much in this way with heaths, though, from my practice with various and allied families, I have not the smallest doubt as to its answering. In fact, with only a little more nicety, it is just the same plan as is followed by nurserymen in growing all the hair-rooted American plants. Those who witnessed the splendid exhibition of American plants at the Botanic Gardens, and at Chiswick, could see nothing insuperable in moving heaths in a similar manner, as the mode of rooting is almost identical.

Well, the bed is to be made, and to be covered with glass, at least when deemed necessary, and to be surrounded with walls of some sort; turf, earth water-proofed with tar, double wooden walls, brick, if hollow and double all the better, as it is amazing to those who never witnessed it, how cosy and dry plants can be kept in winter in such pits. The bottom of this pit should be on the same level, rather higher than the external surface. This should receive a good dose of salt and lime, to destroy everything in the worm way, then covered with at least six inches of rough open matter, in the way of drainage, and then supplied with twelve or fifteen inches of peat; the rough next the bottom, and the finer at the top, mixed for several inches with silver-sand. The same pit, with slight additions of material, would last for many years. In this we would plant our young heaths, from five to twelve inches separate, according to their size, and their slow or quick growing properties. Some very likely would require

more room before the end of the season, and they could either be potted or again transplanted. The great thing would be, by less air, a moistish atmosphere, and shade from very bright sunshine, to secure rapid growth during the first three or four months after planting, and then to give more air, and full exposure to light, without the glass. The harder the wood was thus rendered, the less danger would there be of *mildew* during the winter. With plenty of air, and a small hot-water pipe, there need be no danger at all. Large useful plants may thus be procured more quickly, and at a tithe of the labour of those brought forward in pots. The bother in watering is reduced to a minimum. Once the ground is well soaked, it will not want the water-pail for a time, and any one may be sent to do it, provided he gives plenty. I forgot to mention that there must be holes in the sides of the pit, to allow any extra moisture freely to escape. In very hot weather, evaporation may be lessened by covering the surface of the soil with moss. By moving or transplanting such plants once or twice a year, there will never be any difficulty, either in potting them, or transferring them to beds out of doors.

In the first case, good large flowering plants could be more quickly procured. In the second case, the plants would require to be returned to the pit before the frosts of autumn. I already, in fancy, see vineries and orchard houses, with raised peat borders inside, for preserving heaths during the winter, intended for flower-garden summer display. If any of our friends have a few plants they wish to rattle on with as little trouble as possible, and have a single-light box unappropriated, they cannot do better than follow this mode indicated. The plants will thrive as well as under the one-shift system of potting, and entail less care and nicety. I am doubtful if under either modes the plants will be as continuous as in the progressive mode of shifting and potting first referred to; at least, under my few trials in planting out and then repotting, and much practice in giving large shifts, I have come to the conclusion that extra rapidity in forwarding to maturity is accompanied with a more early decay. This, I think, would be prevented in the case of those grown for flower-garden purposes, by the frequent movings they would receive; but time and practice alone could make us certain.

Watering.—In connection with this subject, I may mention that the frequent cause of failure in the case of young plants would be avoided; extra dryness, and stagnant moisture, being alike their ruin in artificial circumstances. The natural locality and circumstances of the plant, as described by common travellers, furnish no true data of themselves. I recollect a case in point,—some nice plants were burned to death by a July sun. Their owner got convinced that watering was next to useless in such weather, for had not Mr. A., just returned from the Cape, told him that in the dry season all vegetation seemed to dry up and languish; but no sooner did a rattling thunder shower come, than every bush and brake was green, if not blooming. Now, in the first place, the heaths were not subjected to such a burning heat, for they are found chiefly not in the plains near the Cape, but on hill and mountain sides somewhat in the interior. There, no doubt at times, they feel thirsty enough; but, secondly, their roots are not confined to a red pot for the sun to beat upon; there is, in all probability, some surface covering to blunt the force of its rays, the roots may range where they list, they are kept cool, even by the evaporation of moisture from the surface; and as long as the sun keeps on the process, the mountain, from its inward recesses, will yield a supply so long as there is any left to yield. Some might imagine, that because in the interior we approach nearer the equator, that therefore it must be excessively hot, even on lofty hills; but

the statements of intelligent men tell us that it is not so; nay, that even on the confines of the colony, and in what is termed British Caffraria and Caffraria Proper, lofty hills are covered with green herbage to their summits; a fact which furnishes us with a reason why a race, whose property consists in their cattle, should be loathe to leave them, and also why others should be so anxious with slender claims to seize them. R. FRIS.

PROPAGATION OF EXOTIC ORCHIDACEÆ.

(Continued from page 307.)

BRASSIA.—A large genus, which grows quickly, and soon makes fine plants; consequently, soon affords good pieces for increase. Cut off in spring, from a large plant, a leading pseudo-bulb, with two or three back bulbs attached; pot these in the right compost, and place them in a warm part of the orchid-house; shade more than common till they begin to grow, then water, and treat them like the rest.

BROUGHTONIA.—All the plants of this genus are of slow growth. The only way to increase them, is either to break up a large plant into several divisions, or to take off two or three back bulbs, place them upon naked blocks, and keep them rather dry, till the dormant buds break, which they are very tardy to do. Afterwards give a free supply of water from the syringe till the growth is perfected.

BURLINGTONIA.—Increase this in the same way as *Broughtonia*. It is, however, more free to grow.

CALANTHE.—A terrestrial genus to which there have been very lately some fine additions, and more are expected shortly. They are readily increased by division. The only care required is to give less water to the divisions than to established plants. Two or three years ago we had a nice plant of *C. masuca*, and as we grow for sale, it was desirable to increase it as much as possible. The only plant we possessed pushed forth in April a strong young shoot, and in due time sent forth roots also; as soon as these had reached three or four inches in length, the shoot was cut off close to the old pseudo-bulb, and was immediately potted in the compost suitable for the genus. A gentle watering was given it, and certainly rather to our surprise, but to our great satisfaction, it continued to grow, and before the summer was over made a very respectable plant. At the same time the old plant did not die, but sent out another shoot, which also established itself during the summer. Since that we have never wanted for *C. masuca*. Whether such plants as *C. vestita*, and those new species we have alluded to, can be propagated similarly, requires time to prove. We have no doubt they may.

CAMAROTIS.—These beautiful plants branch so freely, that there is no difficulty in increasing them to any extent. They will bear cutting as easily as a geranium. Large specimens may soon be made by cutting the shoots into lengths, attaching them to a tall block of wood covered with moss, into which they will strike root freely, and grow quickly, so as to completely hide the block. In this way Mr. Bassett formed his splendid specimen exhibited at Chiswick, in 1850. See description in *THE COTTAGE GARDENER* for that year.

CATASETUM.—A large genus of singular plants with tall pseudo-bulbs. To increase them, take off the back one made the previous year; place them upon naked blocks, and when they shoot, syringe them gently every morning. The time to take them off is when the plants begin to grow and require potting.

CATLEYA.—One of the largest and handsomest genera in the whole tribe. Every grower is anxious to know how to increase these beautiful, and, in many instances, expensive plants. For many scarce ones, such as *C. Acklandia*, *C. bulbosa*, *C. maxima*, *C. marginata*, and *C.*

superbs, a little extra care is needful, in order to insure success in increasing them. This extra care consists in choosing two or three back bulbs, and with a sharp knife cutting out a piece of the rhizoma, or leading root-stock that connects the pseudo-bulbs together. Let this cut be rather more than half through the stem, but be careful that the knife does not slip entirely through it. Leave the plants then entire, till the dormant buds at the base of the back bulbs begin to swell and show signs of growth, then cut out a little more, leaving only the bark underneath entire. The bud will then swell rapidly, and just before it shows a leaf, divide it entirely from the old plants; take it carefully away, and fix it to a naked block of wood proportioned to its size; hang it up in a shady part of the orchid-house and syringe it daily. In a very short time the bud will grow and fresh roots will appear, and then, with proper attention, the young plants will be secured. Other kinds of *Cattleya*, such as *C. labiata*, *C. Mossia*, and *C. Harrisonii*, may have the back bulbs cut off at once, potted in the usual way, be tied firmly to short sticks, watered but little at first, and more as they grow. In this way, all the more common and harder kinds may be readily increased.

Chrysis.—This handsome genus should be increased by dividing the rhizoma, and leaving the parts in the basket, or pot, or block, till the back bulbs begin to grow. As soon as the new roots appear, take the pieces off from the established plants, and place them on blocks, with a little green moss. Syringe slightly every day, and in other respects treat them like the old plants. In three years they will, if properly managed, produce flowers.

T. APPELEY.

(To be continued.)

MR. GLENNY ON FLORISTS' FLOWERS.

THE PETUNIA is one of the most obstinate of our bedding-out flowers. It is naturally flimsy, and seems inclined to continue so; we have, it is true, seen occasionally a seedling of thicker texture, and when such an advance is obtained, it should be taken away with one or two bright-coloured ones, and the seed carefully saved from the thicker one only. But people carelessly save seed from anything and everything, and the objectionable character of the flower seems permanent; but we feel certain it is to be overcome—if one will come thicker in the petal, others may be obtained thicker still. With our present varieties, an hour's sun makes them look half dead, and, however difficult it may seem to change their texture, it is to be done, as well as it was done with the hollyhook, which, in the hands of Mr. Baron, of Saffron Waldon, was improved from a flimsy and poor, to a good, leathery, strong petal, that stands any weather. We do not say that the petunia will ever be capable of standing four or five hours' sun, but that it may be very considerably improved in the hands of any one who will set about it in the right way, we feel quite assured. There is this difference between the management which is necessary and that which is now generally adopted: those who raise seedlings may perhaps go so far in the right direction as to save from the best flowers; they perhaps go carefully over their seedling-bed, and mark half-a-dozen, or more, which they think remarkable; they are very large, or very nicely formed, or the parties, who are really attentive to properties, may go so far as to select the thickest petals, and carefully save all the seeds from the few thus promoted, and the next year they have another bed, on which the hunting for improved varieties is just as hopeless; and all this comes of saving the seed of the favourites among hundreds of worthless things. The proper way is, to separate them immediately; removal to another place is more objectionable than throwing away the bad ones.

We recommend that when a bed of seedlings begins to bloom, the instant the first flower on a plant opens, its fate should be decided; if no improvement, pull it out and throw it away, and if there be one of fine form, very brilliant colour, thicker petal, or good habit appears, throw a gauze over it; but the removal of every common thing should be instantaneous when it can be detected by the opening flower, until you have nothing in the bed but the selected few, and these may then be uncovered. There will be a manifest improvement in the next produce. This sowing of seed may be rendered still more effective by potting all the plants, and blooming them in small pots. Have a bed ready, away from all other petunias, and the instant a flower opens that exhibits an improvement, turn it out of the pot into the bed, getting rid of the others as you please, giving them or throwing them away if you can do nothing else. The few you select, on the first good flower appearing, will then yield good seed. If, by overlooking it, any one gets a few flowers out before you see it, they might become fertilized with the rubbish, but all the mischief will be got rid of by picking off every open flower before bedding out.

The chief improvements to be looked for, are—1st. Thick petals; 2nd. round form; 3rd. brilliant colours; 4th. fine shrubby habit. There is no plant easier to manage than the petunia, for a friend of ours who cultivated mignonette in pots for the market, having a packet of seed given to him, sowed at the same time, and in the same manner; thinned them out to four or five plants in a pot; kept them in the same frame, and subjected them to the same treatment, and although they were good-for-nothing as varieties when they bloomed, they were capital specimens of well-grown plants, and would have been better had he thought it worth while to pot them singly, instead of leaving them like his mignonette, four or five plants in a pot. He who wishes to begin should pick for himself, from a nurseryman's collection, half-a-dozen which come nearest to our description of what is wanted, and first picking off all the open flowers, bed them out together somewhere away from all others of the family, and then follow out our hints. They will thus gain a season; for to buy petunia seed, and raise plants, would be hopeless, and to a young beginner, heartless work. Petunias will strike under a hand-glass in a common border; but all cuttings, from no matter what plant, can be facilitated in rooting by the bottom-heat being slightly greater than the heat above, and when a good variety is obtained it should be propagated.

(JAMES S. READING.)—*Camellias* are worthless when ragged at the edges, and thin in the flowers. Neither of the varieties are worth propagating. The light one is the best, but Presse's Eclipse is better.

(K.)—The flowers of the *Cinerarias* will come better yet; not one of the varieties deserved the character given to them by the raiser, or the paper, but they will be much better than they are now, for the growth is evidently starved.

POLYANTHUSES (J. W.).—Flowers too small if the plant is strong, but the worst fault is that they are unequal, and will never make a good truss. (L. L.).—"The side truss" is rather promising than otherwise, but we do not wonder at so few being good, and none being new in character. We have already said, that for colour and general properties, the pin-eyed flowers beat the others, and when we want to raise good show flowers with some novelty about them, we shall save the seed from the pin-eyed varieties, and impregnate them ourselves with the pollen of the best we have. There will, perhaps, not be one thrum-eyed flower among fifty, but it is the only chance of novelty. The polyanthuses saved from our show varieties, come the same thing over and over again, for they fertilize themselves. The thrum being above the pistil, and actually covering it so that

one cannot get at the one without disturbing the other. In the pin-eyed varieties, the pistil is above the thrum, and therefore it gets fertilized from others, and gives ten times more novelty and variety. In fact, we can impregnate them as we like.

VERBENA CULTURE.

(Continued from page 321.)

INSECTS.—There are two kinds that prey upon the verbenas, unhappily both familiar enough to any one possessing a garden; even a greenhouse or a stove are subject to them, for they are hardy enough to bear our cold climate out of doors, and can brave the heat of our hottest and moistest stove. We need hardly name *the green fly* and *the red spider*.

On neglected plants these two destructive pests are sure to prevail, even to the death of the plants, whether out of doors or under glass. Continued rainy weather will, it is true, be inimical to their progress, but the return of fine, warm weather will allow them soon to get ahead again, provided no means are used to arrest their progress.

The means to destroy *the green fly* are simple enough, yet certain. In the frames, tobacco-smoke is the old-fashioned and least injurious of any yet known; the best and simplest way is either by using Brown's fumigator or a fumigating bellows, these are much safer than any vessel containing fire with the tobacco laid upon it. If, however, those instruments are not at hand, then use a shallow garden-pot, with holes at the side, and with a wire round it, and another wire stretched over it, to form a handle; place some red-hot cinders at the bottom of the pot, and put the tobacco upon it after you have it in the frame, and then watch it closely. If the least appearance of flame arises, pluck it out instantly, it is the flame that does the mischief of scorching the leaves; if no blaze appears, take it out as soon as the frame or pit is fairly filled with smoke, shut down quite close, and cover up with mats to keep the smoke in as long as possible. Next morning examine the insects, and if they are all dead, give a smart syringing to wash them off the plants. Should any be found alive repeat the application of smoke the following evening, and that is almost sure to destroy all that may have escaped the first dose.

Plants growing in the open air, and infested with this small pest, are more difficult to clear of it. The same herb furnishes the means in the shape of an infusion; a pound of tobacco will make four gallons of tobacco-tea or water. Strong tobacco-water may be procured from the manufacturers, but this requires reducing. With this tobacco-water syringe gently the verbenas plants as they are growing in the beds; the best time is during a still evening, when there is no appearance of rain. The next morning give the plants a smart syringing with clean water, this will wash off the dead insects and refresh the plants greatly. When the plants are in flower this syringing with tobacco-water cannot be applied without injuring the blooms; in that case, provide some Scotch snuff, and, with a dredger, dust the plants over, avoiding the flowers; this, if done dexterously, will have a good effect. The syringe must be in requisition the following day to wash off the snuff, care being taken not to wet the flowers. In very bad cases, it would be desirable to cut off all the flowers, and give the plants a good dressing with tobacco-water, &c., in the same way as if there were no flowers upon them. Again, if the insects are but partially present, that is, only upon a plant here and there, they might be destroyed by placing a hand-glass, or any close vessel, over the infected plants, and filling it with tobacco-smoke, closing the vessel tight

rous, they might even be picked off with the fingers, crushed, and destroyed at once. All this may appear trifling to the mere grower of flowers; but to him who is anxious to bring his flowers to the highest point of perfection, no point of culture, however trifling, will appear needless to attend to.

The Red Spider.—Of all the insects that annoy the plant grower, there is none so destructive as this, and, what is worse, none, perhaps, so difficult to extirpate, especially in the open air, on such plants as the verbenas with small wrinkled leaves. In the hollows of such leaves they dwell in security. Yet, being so destructive, they must be checked, or vain will be the effort to grow these flowers for exhibition. The most useful and effective remedy for the red spider is long continued rainy weather, thus showing that wet is what they abhor. This natural remedy, however, is not at our command, neither does it apply, or, at least, it cannot reach our plants under glass. It is true we can, to a certain extent, imitate the showers that fall from the clouds, and we can, by means of a bent-nozzled syringe, wet the under side of the leaves,—the grand citadel to which the enemy retires during the continuance of the (to him) pelting storm. No doubt frequent syringing will, in a great measure, prevent their increase; but when they have become so numerous as visibly to injure the health of the plants by turning the leaves yellow, and thus debilitating their powers, stronger remedies must be tried. Sulphur is one; but it will not kill the insects, it only renders the leaves unfit for food, and thus either starves them to death, or causes them to seek food in some other quarter. It is, therefore, an useful application, and should, whenever any of the leaves appear spotted, be dusted upon and under them, as much as may appear necessary, or till the leaves where the insects lodge are covered with it. In dry weather, by way of prevention, use the syringe regularly and freely, both to the plants in pots and those planted in the open air. Strong soap-water will *kill* them; and young plants in pots, that have any of these insects upon them, might have their heads dipped in soap-water, which would effectually clear them of these tiny enemies. It is made by dissolving one pound of common brown soap in five gallons of hot water, and should be used whilst in a tepid state. This remedy is difficult to apply to planted-out plants, and, besides, would be too expensive; but for young plants, it is an excellent application, of course applying to other plants as well as verbenas. We once saw a row of gooseberry trees that had been thoroughly wetted with soap-water, and were as green and healthy as possible, whilst the adjoining row, that had not been washed, were as yellow as if in the autumn of their existence. We never witnessed so striking an illustration of the powers of any insect-destroyer as that presented. T. APPELEY.

ARTICHOKES AND HORSERADISH.

Although the ARTICHOKE can scarcely be called hardy, yet we seldom see any pains taken to protect it through the rigours of our winter, and the consequence is, that when severe ones occur, the plant is so far injured as to require a considerable part of the summer to recover itself, to say nothing of producing useful large heads for table purposes. One thing, and that a very important one, tends more to its neglect than many others—that is, the apathy or unconcern with which it is regarded by most people, who have no wish to assume a peculiar taste, by patronising what no one else cares for. But we by no means wish to disparage this vegetable—our purpose is rather directed to the means proper to take to promote its growth and utility; and, beginning with that, we may say the artichoke likes a dry, sound, open

piece of ground, neither too damp, nor, on the other hand, too shallow. Rooting deeply in the ground, it cannot be expected to produce good-sized globular heads in any quantity, if its roots be denied that depth of soil which is necessary to resist the scorching heat of the dog-days; neither can we expect the plant, which is, at best, only half-hardy, to stand the winter, when its whole system is charged with the moisture it derives from the damp position allotted it; therefore, when it is in reality wanted in good condition, it must be treated generously, and in point of produce, for a given space of ground, few things do better, one of the principal failures being the damaged condition it is often seen in when spring returns, and which cannot well be prevented by the means always at command, but much may be done by timely applying some protective matter, as a small conical heap of straw, litter, or leaves, or it may be green fir-tops, furze, fern, or any other shelter, only do not let such darkening matter entirely cover the foliage, otherwise you only run into one extreme by avoiding another. We have, while in the south of England, often seen artichokes stand the winter with no other covering than their own dead leaves lying about them, but usually some other covering is necessary.

We will suppose them to have passed through the winter safely, and the middle of March to have arrived. It is now, therefore, time to uncover them, dig around, and dress them up, and, if necessary, to make new plantations, as offsets can now be easily taken, which will make fine plants by autumn, and probably bear then. We need hardly point out that trenching, dunging, and well preparing the ground, is necessary to ensure success; such routine business presents itself in too evident a manner to require even a notice here. It is usual to plant them three feet apart in the row, and four feet between the rows; this is none too much, but the first season a slight crop of something, as lettuce, or radish, might be taken off the ground between the plants; and later on the offsets of the artichokes, if they go on all right, will occupy the whole space, and generally produce fine heads, after the old plants have ceased bearing, thereby carrying on the crop until a later period.

HORSE RADISH.—This useful vegetable, and pernicious weed—for the gardener knows it by both appellations—is often banished to some out-of-the-way place, where, overgrown with weeds and dirt, it is seen struggling for an existence with couch, water-grass, and other weeds peculiar to the locality, and has often been dug over to extract any roots that are at all fit for use, until the complaints from the kitchen, conveyed through the poor garden boy, that they cannot any longer use such stuff, forces the gardener to adopt means to have a better article another season, and accordingly he sets about it at once, and his attentive eye soon finds out a suitable position, where a deep, damp, but not clayey, soil exists, and sufficiently removed from the usual promenades of garden visitors, as its appearance is seldom such as to add grace to the spot it occupies. Then, having dug, or rather trenched, this ground two feet deep, and buried dung, or other enriching matter, at the bottom of each trench, he takes advantage of some dry day early in March, and with an iron crowbar, or other ponderous tool, as a dibber, he makes holes at least eighteen inches deep, in rows not less than two feet apart, and about one foot plant from plant. Into those holes he drops the crown of a head of horseradish, some two or three inches in length, and, allowing the hole to remain open, he leaves the crop so, unless the situation be one secure from the attacks of game, and other vermin, and then he either sows or plants some slight crop on the ground between. We need hardly observe, that the crowns so dropt in ought to fall to the bottom, and not lodge half-way—the moisture of the ground, and what earth will naturally

fall in, is sufficient to keep them alive, without being entirely immured; but if they are so, they are sure to force their way up to the top, unless very damp indeed; in fact, so tenacious is this plant of life, that when small portions of it get into the squares of the kitchen-garden, it is no easy matter to eradicate it again. No ordinary weed holds its place with more pertinacity than does this favourite accompaniment to that emblem of English hospitality, "Roast Beef;" and we believe the vexation arising from its tenacious habits is the means of its being denied that culture due to its worth.

The best plantation of horseradish we ever saw was on a peat bog, where a depth of some four or five feet of black peat soil rested on a bed of pipe-clay; this place, intersected by open ditches, was also planted with fruit trees, with a varied result, of which I may speak hereafter; but its most useful crop was horseradish, of which some two or three acres were grown for the London market, and such pieces of clean, straight, and sound roots I never saw before nor since. But as every one does not possess such a spot, it may be very well grown by adopting the means mentioned above; and its site, often being one not coveted by other things, may, in most cases, be found in the environs of the kitchen-garden.

KITCHEN-GARDEN SUNDRIES.—*Cauliflower Plants* that have been standing in hand-glasses and frames, must now have full exposure both day and night; in fact, we presume them to have been so inured to currents of air the last few weeks, that their planting out might now be proceeded with, provided the weather and other things be favourable; but if severe, or what is nearly as bad, a continuance of cold, blighting, easterly winds occur, they had better remain where they are for a week or two longer; the middle of March is not a bad time to plant out those expected to produce the second crop; the first we suppose to be those occupying the hand-lights, and after being duly thinned to remain where they are. Thin out, and plant on some well prepared piece of ground, the *Autumn-sown Onions*, which the mildness of the winter has allowed to stand uninjured. It often happens that those planted out excel those left to bulb on the seed-bed. Where no autumn ones were sown, and cannot be obtained, a very good substitute may be had by planting some of the small ones of last summer's growth, as recommended in our essay on onions; these, though never making handsome, good keeping onions, yet form tolerably large bulbs, and carry on the consumption until the ripening of the spring crop; and we are always averse to plunder it in the middle of its growth, in the manner we have seen some obliged to do, when the demands of a large family left them no alternative. *Onions for seedling* should also be planted now; and those who grow only for their own use, will see the propriety of selecting the best bulbs. It is common to choose the largest for that purpose, and those a little grown are often taken, simply because they are unfit for other use; now we think this latter plan objectionable, because in planting such bulbs it cannot be said they are the best keeping ones—and we all know their keeping property is one of the best they have. In planting, allow them about eighteen inches each way, and only slightly cover the bulb. *Leeks* required for seed may also be planted out, but they are of less moment than onions and some other things.

Attend to things in the course of forcing, and as the season advances more air may be admitted. *Rhubarb* that has been producing some time may now be relieved, and some slight protection placed over it, to enable it to endure the cold weather that may yet be expected; other crops we suppose to be following. *Sea-kale* may now be had in less than half the time it took before Christmas, and, after this, seclusion from the air is all that is wanted, as this vegetable, contrary to many others, is in

most esteem when that necessary agent to successful vegetation is withheld from it, to a great extent. Proceed with the planting of *Potatoes*, and *Broad Beans* for the second crop may also now be put in. Dig and prepare ground intended for small seeds, so that when wanted it may be in the best possible order calculated to insure a vigorous growth. J. ROBSON.

ALLOTMENT FARMING FOR MARCH.

MIXED CROPPING.—Although this practice may not be recommended in a general way, yet there are many cases in which, by judicious management, something extra may be done. Mixed cropping, however, requires much forecast, it must not be settled by the whim of the moment; it is absolutely necessary that the plan should embrace a full consideration of the times of sowing or planting, as well as the times of gathering, together with a complete understanding of the habits of growth of the crops in question, and their capabilities of a partial deprivation of light: without such considerations, we say, do not attempt it. We have seen, with regret, hosts of cases, during a whole life of gardening, in which the cropper was chuckling over his double crops, utterly ignorant of the fact that he was a loser both in ultimate profits and in amount of labour. The injudiciously mixing together mere annual crops, such as beans, peas, spinach, lettuce, &c., is not so very material; not so when root crops are mixed, as the Swedes, mangold, carrots, &c., the bulk and quality of which depend on a whole summer's elaboration through a free admission of light and circulation of air. No marvel that our working population should not comprehend the importance of a free admission of light to certain crops; in conversations with farmers, for many years, we have never been able duly to impress them with the importance of it, at least, not one in a score. Talk to them about the influence of light, indeed! or about the elaboration of the sap; they seem to have only one idea about it, and that is, that the ascending sap enters at once into the potato or turnip, and is at once assimilated without ceremony. As for the agency of the foliage, they seem to have no distinct idea of it, and are, indeed, tolerably indifferent about the matter.

We lately saw an opinion expressed in some agricultural paper, that one ton of Swede turnips, from well cultivated upland loams, is fairly worth thirty hundreds from low and light soils; and we do heartily believe that the writer is tolerably correct. And why? The writer did not venture on this little understood question; but our temerity will draw us in. A steadier growth, and, by consequence, a more certain admission of light to all portions of the leaves, render the secretions richer, or more perfect. This is, we are aware, a broad question to open, and has chemical bearings; we do not presume, therefore, to say that our solution comprises the whole of the subject, but merely that it accounts in the main for such difference in crops. The kidney potato grown on stiff loams is quite a different plant to look at, from the same kind on loose and rich sandy soils; those on the clays will stand firmly up when in full growth, those on loose and rich soils will generally squat about in all directions, and, of course, render useless all those portions of the foliage thus deprived of the solar light. With such cases may be classed what our farmers here term "figgy" corn, that is to say, corn overgrown; and whatever may be said by our chemists about the absence of this, or the presence of that, a disproportionate amount of light, not only perpendicularly, but sideways, is enough of itself to account for it.

Thus much as paving the way to a consideration of the subject of mixed cropping, to which we now return.

ROOT CROPS.—As before, we take these as the base of all really profitable schemes. If the cottager has a pig (many in these parts possess a cow), they are of such service that all pig-feeding without the culture of roots is uphill work; and this at once, if sound doctrine, points to the propriety of allowing every industrious labourer a little land: it is, in very truth, a national affair. A man cannot be thoroughly contented unless he be somewhat comfortable, and who shall dispute the soundness of that policy which would at

least place the means conducive to contentment within the reach of every industrious member of society? We cannot here forbear observing, and we crave a moment's indulgence from our readers for a little digression, that if every industrious mechanic or labourer had a quarter-of-an-acre of well-cultivated soil (*cultivated by his own hands*), and once took a thorough pride in cultural matters, little temptation would be presented to turn demagogue, poacher, or incendiary.

COMBINATIONS WITH SWEDES.—These, as their name implies, are of northern origin; they are, therefore, hardy, and can do occasionally with the dull skies peculiar to northern climes. The period of sowing is of course the end of April, or beginning of May; and the time during which they require the greatest amount of light, we should say from the middle of August to the end of September. Cultural operations, too, must be had in consideration; these prevail chiefly through June and July. We would have nothing amongst Swedes in August and September, and as for any other crop during the latter part of the cultural period, it is plain that to accomplish it the Swedes must be placed beyond usual distances. Ground intended for Swedes might carry early cabbage, of the August sowing, winter lettuce, spinach, or even early Longpod or Mazagan beans; the latter should have been sown in the end of January, but if soaked, and set to germinate speedily, may yet do. In most of these cases we would place the Swede rows (double) forty-two inches apart, and we would have a double drill of either crop in the centre; the turnips, also, ultimately, in double drills, that is to say, the rows in pairs, about nine inches apart. Of course, any of these crops must be got in immediately, and the seeds soaked to hasten them.

COMBINATIONS WITH MANGOLD.—This root requires all the light possible during August and September, and room for cultural operations through June and July. The same crops and course of culture, therefore, as the Swedes, will be eligible here, but for mixed cropping, forty-eight inches may be allowed.

COMBINATIONS WITH THE POTATO.—These must be classified for such purposes into early and late, although few will venture to entertain the idea of late ones in these days. It is a practice in Cheshire to plant very early kinds in beds or "butts" (bouts?), and to plant ox cabbages in the alleys; and very profitable crops we have known in this way. Some dibble broad beans along each side of the butts; these two answer pretty well. We like tall winter greens amongst them; the potatoes in double drills, the greens in single ones. Thus—plant early potatoes in the first week of February, the drills in pairs, leaving three clear feet between each two outer rows:—The potato drills one foot apart. Let some green kale, Brussels sprouts, or thousand-headed cabbage, be sown in the second week of February, if possible, in a warm corner, and protected as radishes. Prick out the plants on good soil, in the end of March, rather thickly, for the longer their stems the better, if stout. The potatoes being earthed-up and cleaned thoroughly by the middle of May, introduce the greens in each centre, the Brussels sprouts in double rows, the plants about nine inches distant, the kale a foot, and the thousand-head cabbage twenty to thirty inches. By the time the potatoes are taken up, the greens will be getting tall, and will receive an earthing-up in the act of taking up the potatoes. As soon as the potatoes are up, Swedes may be planted in double drills, or common turnips may be sown, or coleworts, sown in the end of May, planted. These things we have often grown together, and highly recommend as one of our most profitable combinations.

CARROTS.—This is so delicate in the young state that few combinations will suit. To be sure, we may combine any two crops by allowing extra room, but this is nonsense. The only principle of combination we recognise is one which, taking advantage of the habits and periods of one crop, enables the cultivator to gain a month or two; in other words, to turn ground to profit for a while, which would otherwise be idle; and all this without any particular sacrifice as to the principal crop. As to the carrot, everybody knows that it is peculiarly liable to the grub, so much so, that many are deterred from attempting its culture, although one of the most valuable roots in cultivation, if successful.

Such being the case with ourselves, we have been in the habit of sowing alternate rows of parsnips with the carrots. If the carrots succeed, and get past the middle of August, the parsnips may be heavily thinned, or all drawn up progressively, and given to the cow or pigs. At this period they are exceedingly succulent and rich, and tops, roots, and all, will be greedily devoured, whilst the cottier's wife will be able, with some boiling peas, and a bit of fat bacon, to make a first-rate soup for the bairns. There is little trouble in this; no sacrifice, and it is a capital plan. Parsnip-seed is, or ought to be, the cheapest seed in the country; four ounces is amply sufficient for any allotment man, and that will cost him sixpence. The ground being thoroughly worked, the parsnips may be sown in the middle of March, not sooner, and the carrots in the early part of April, or they may be sown together in the last week of March, in drills about a foot apart—the parsnips sown very thinly indeed.

BROAD BEANS.—Of all the crops, this, perhaps, does the least harm, introduced amongst others, requiring but little cultural operations, and sustaining themselves erect until dead ripe. They seldom do harm if planted thinly.

PEAS should, if possible, be sown at the exterior portions of the garden. These cannot succeed when deprived of sunlight and a free circulation of air.

BUSINESS OF THE SEASON.—*Onion sowing* should take place within the first twelve days of March. Our plan is to seize on a plot of ground which had been well manured some eight or twelve months previous, and trench it deep. They succeed best some shallow-rooting and fibrous crop, especially one which has not been troubled with grubs or insects. We mark out four-foot beds, with fifteen-inch alleys, and throw up two or three inches from the latter before sowing, for the more elevated beds, the quicker the ripening-off is performed; we expect a good crop of winter colworts as their successors. All those things being prepared, wait until the surface is dusty, and then sow, treading the seed in firmly. A very little soil may be thrown over, just covering the seeds evenly; the rake we do not use. In the course of a week or two, when the soil is particularly dry, we pass the roller over the beds, which, when finished, look like a sound and elevated turnpike-road; sometimes alarming folks with delicate nerves. We buy Spanish, Portugal, Globe, Reading, and James's, and mix them all together, sorting them out when harvested.

PARSNIPS.—The first week; deep trenched soil, the manure low down.

ARTICHOKES, the Jerusalem.—Directly, three feet by eighteen inches; any poor soil will do. Well adapted for divisions, or for rough boundary plots.

CABBAGES.—Directly dig deep, and manure well.

PEAS.—A full summer crop forthwith. The Prussian or green imperial for cottagers.

LETTUCE.—Plant out directly, on rich soil, and sow a sprinkling of *Ady's cos*.

WINTER GREENS.—Some time this month sow green kale, Savoys, Brussels sprouts, &c. They should be earlier or later, according to the plot they are intended for.

LEeks.—Sow directly; rich soil.

SPINACH.—Immediately; the round kind, between some other crops.

RED CABBAGES.—Plant for pickling.

ONIONS, FOR SEED.—Plant directly.

SHALLOTS.—Lose no time in planting.

BROAD BEANS.—Plant a breadth for the latest, shortly.

POTATOES.—The earlier these are finished the better; late planting is a gambling transaction.

MANURES.—Those who have neglected handling their muck heap must lose no time. This business should always be performed as early in spring as possible, choosing a dry period for it. Formerly no distinction was made—to dig in dung of some kind was enough. The extension of root-cropping, however, as the true basis of improvement, and the best economy, has led to a distinction in these things. Our advice is, use a drill mixture to *all root crops*, independent of what coarse manure may be dug in. As a general plan we say, select, in turning the dung-hill, all the crumbling and finer material which generally lies near the bottom; this, *house* somewhere in the dry weeks before wanted. Let the chimneys be swept and the soot added to the heap, to which a little salt, say one part in twenty, may

be added. All charred weeds and rubbish, also, should by all means be put to the heap, and any old, spent tan, leaf-soil, &c.; this material, well blended, and applied in the drill, will set the young plant on its legs in half the usual time. All this looks very fussy, no doubt, to some people; but they may rest assured that "*the don't matter*" sort of folks are likely soon to be left in a fearful minority.

As advice before parting for a few weeks we say, "remember that the insect and animal world are as alive to returning spring as the cultivator, and plans, offensive and defensive, must be laid without delay. We still stick to cinder-ashes and new sawdust as a slug and bird repellent; a little quick-lime should also be at hand.

And now, with our famed Nelson, let us add, "England expects every man to do his duty." Let us all be up and doing, and with true old English pluck make up our minds to advance every year. The cottager has truly advanced socially, let him take care that the same progress takes place industrially.

ROBERT EBBINGTON.

APIARIAN'S CALENDAR.—MARCH.

By J. H. Payne, Esq., Author of "*The Bee-keeper's Guide*."

HIVES.—Having already described the hives I most approved of in the Crystal Palace, I will now give a description of a newly-invented one of my own. Convinced as I have for some time been of the many advantages arising from having every hive fitted with bars, I have at length constructed a *square straw hive* of that kind, which, from its inexpensiveness, I trusted would have come within the reach of almost every cottager; but since putting together the little items of cost for its several parts, I fear that I am mistaken, for it can cost but little, if any, less than eight shillings. The hive, as I have already said, is of *straw*, and perfectly *square*, 13½ inches by 13½, fitted with eight bars, of one inch and an eighth wide, with a cover of wood—the bars are kept in their places by zinc fittings. The openings in the crown-board are so placed as to allow of one large glass or two, or three small ones, being worked. It is protected from the weather by a milk-pan only, in the winter, and in the summer, whilst glasses are on (which may be covered with an old straw live), by a milk-pan and zinc shade. From the facility given by the bars to renew the combs, this hive may be expected to stand for many years, therefore, two or three coats of paint should be given it before the bees are put into it, and an additional one every year or two afterwards; and, as a further means of preserving it from decay, the floor-board should be the exact size of the hive; so that the drip from the milk-pan clears it, a slight project in front for alighting must of course be allowed; but by a careful adjustment of the milk-pan the drip may be made to escape this also.

MILD WINTER.—The very great number of fine days we have had this winter have made my bees so active, as to lead me to expect they will some of them require feeding ere long, although I was very liberal to them in the autumn. At present all appear to be thriving, and in some of the strongest of them, I imagine that breeding has been going on for the last week or two, from the number of grubs and imperfectly-formed bees that are brought out every fine day.

FEEDING.—From the unusual mildness of the season, greater attention must be given to feeding than is usually necessary, or many stocks will be lost. A gentleman, writing to me from Nottingham, on the 6th, says:—"I know not how your bees have fared, but it has been a most disastrous winter with me—I have lost six stocks by famine and robbers."

EARLY GATHERING.—I observed my bees, on the first of February, busily employed in collecting pollen from the Winter Aconite, and now (the middle of February) they are as busily engaged every sunny hour amongst their favourite crocuses, and also upon the blossoms of the *Arabis alba*, which well deserves to be classed amongst early bee-flowers, and cultivated as such.

HAY-BANDS.—I have put in practice, with my own bees, what I recommended last month, namely—covering some of my hives with hay-bands; the good, should any be found to arise from it, in promoting early breeding, shall be communicated in due course.

DESTRUCTION OF STOCKS.—I very much regret to learn by letter, as well as by the newspapers, that our veteran apiarian friend, Dr. Bevan, has been a sufferer by the late terrible inundations. His lower rooms were three feet deep in water, and his apiary (more than all to him) entirely swept away. I can readily imagine how he feels this loss; for at his advanced age (approaching ninety), his bees were his greatest source of amusement, the loss of which will not only be felt by himself, but by the apiarian world generally, for I believe he had some experiments in progress, which, if he had been successful in, would have been given to the public. I trust the loss of his bees will be made up to him by the bee-keepers in the immediate neighbourhood of Hereford, each one sending him a stock.

THE MANAGEMENT OF GEESSE.

(Concluded from page 296.)

AFTER the geese with their young have been about four or five weeks on the common, they are then expected to be able to support themselves; and being better vegetable feeders, and thriving better on grass, than any other sort of poultry, they will now grow rapidly, and will require little or no hand-feeding until they are sold to the farmer to stubble. At this stage they may be also left out at nights on the common, but they must be still almost daily looked after, in order that the young ones may not get intermixed with other flocks, which they are still liable to do; and the sooner the stray ones are again put among their own flock the better, for if allowed to remain many days with a strange flock, it is difficult to get them to haunt with their own afterwards. When they do get mixed among others, the easiest way to recover them is to use a stick four or five feet long, with a crook at the end of it similar to a shepherd's crook, with which you can single out your own, by passing the crook round the neck of the gosling. This feat requires some dexterity in doing, in order to avoid an attack of the old ones, for they will surround you with threatening gestures, and loud hissing, and will wait the opportunity of your stooping to pick up the young one, when, if not quick in doing so, you will most probably receive a blow from behind from the wings of the old gander, which, together with a not very pleasant nip with his bill, will tend to quicken your movements exceedingly. After the goslings get older they do not so readily intermix with other flocks, except in case of a fox paying them a visit, which he sometimes does, and commits sad havoc among them.

Another source of profit derived from geese are their feathers and quills, but those are now, as is well known, greatly deteriorated in value to what they used to be—the price of the latter being hardly equivalent to the trouble of plucking them. Even in “the good old times of Queen Bess,” the goose seems to have been greatly valued, not only as a dainty dish, but also for her quills and feathers; for Roger Ascham, tutor to that queen, in speaking of the goose, says—“Well fare thee, gentle goose, which bringeth to a man, even to his doore, so many exceeding commodities. For the goose is man's comfort in warre or peace, sleeping or waking. What prayse soever is given to shootynge, the goose may challenge the least part of it. How well does she make a man fare at his table. How casilie dothe she make a man lie in his bedde. How fitte even as her feathers be only for shootynge, so be her quills for writing!”

In the fens of Lincolnshire, where great quantities of geese are kept, it is said that they are stripped of their feathers sometimes as often as five times in the year! This I consider as very improbable, as the feathers cannot ripen at most more than three times in the year! What I mean by being ripe is, that when so, the feathers are easily plucked, and have no signs of blood attached to their ends. The best time to feather the old ones the first time in each year is as soon as the young ones get covered with feathers, and again about Midsummer, when both old and young ought to be stripped of their feathers and quills. The feathers should be taken off no part except the breast and along the belly, and not more than five quills taken from each wing. If it be fine weather, they will not generally suffer from this process; but if cold or wet weather immediately succeeds this operation, some of the weaker ones

may suffer. The old ones submit quietly to be plucked, but the young ones are very unruly, and if not gently handled they may be easily lamed, from the efforts they make to get away.

As many of the earlier sorts of geese (if well-fed during the winter) will commence laying again after hatching one brood, if not too late in finishing laying a second time, they ought to be set again, but the second hatching never thrives so well, or gets to the size of the first, consequently they are not of so much value, being generally sold for one shilling less each than the earlier ones. I would recommend not to feather the second hatched ones at all, as they are very liable to die from the effects of it afterwards.*

About the commencement of harvest is the usual time when the cottager disposes of his young geese to the farmers and others, in order to fatten them on the stubbles for market or for their own use. He will then be amply repaid, if successful, for all the past trouble and attention which he has paid them; for, if successful, he will find that his five brood geese will have nurtured and brought up at least nine young ones each, which will sell—at least they do here—at 3s. 3d. each; this will amount to the handsome sum of upwards of £8, including the feathers and quills. After allowing for the year's keep of each goose, together with the gander, to be two bushels of oats each, at 2s. per bushel, this amounts to £1 4s., together with about 6s. worth of oatmeal, and three bushels of oats for the young ones, for the first month; making in all £1 16s. for expenses, against £8, leaving a clear profit to the cottager of upwards of £6.

But let it be understood, once for all, that geese can only be kept thus advantageously by a cottager on a common, where such cottager has a right of depasturage thereon with geese; otherwise I do not think they can be profitably kept by any one, not even by a farmer, except on fens or marshy lands, where little else will thrive; for it is well known by every intelligent farmer, that nothing is more injurious to pasture land than the excrement of geese, and none such will allow them to be seen on their farm, except for fattening on the stubbles.

It is generally understood that after geese have been well stubbled, they will require little more fattening—such is, and ought to be the case, provided they have had a good range of stubble, and a sufficiency of water; but many buy them off the common, who have not stubbles to fatten them, and such as do this ought to have an empty out-house to put them in, for they should not be allowed to roam about, which prevents them fattening so soon, besides, as has already been said, doing injury to the herbage wherever they go. The out-house in which they are kept ought to be kept perfectly clean, and well littered with straw every alternate day. Two troughs should be used, one for dry oats, and the other, which must be larger, for holding vegetables, such as chopped cabbage, lettuce, turnips, &c., these, which will be plentiful in every garden at that time, are not only economical, but excellent feeding, on which they will fatten in a few weeks, and the goose when thus fattened, will be found, when cooked, to be far superior in flavour to those fed in the stubble. Among the vegetables already enumerated, there is none equalled by the Swedish turnip for fattening properties, these must be cut into small pieces, about half-an-inch square, and put into a trough among clean water. This vegetable I prefer before any other for geese, and if plentifully fed on it, together with a sufficiency of dry oats, and clean water, they will fatten on such food in five weeks, and be found of a superior flavour to the generality of fattened geese. They may also be given the refuse of the kitchen, such as potato peelings, &c., and the refuse small potatoes, if not intended for planting, may be given them, but they must be cut in two previously. For the first day or two, when put up to fatten, they will not relish much the vegetables mentioned, but after that they will begin to devour them greedily.

It has been already said, that the young geese are sold off the common by the cottager for 3s. 3d. each; this is when the stubbles are nearly ready for them; they, therefore, cost the farmer nothing, as it were, for the expense of fattening, and are generally sold, on an average, for 6s. each, leaving a profit

* We recommend it not to be done at all. It is a barbarous custom.
Ed. C. G.

of 1s. 9d. each to the farmer, thus both cottager and farmer are benefited by the keeping of geese, and I will now endeavour to show how others may be also benefited who are desirous of fattening a few for their own use. These ought to buy them a little sooner, when they may be purchased for about half-a-crown each, and if fed as has been recommended, allowing three-quarters of a bushel of oats to each goose, with a sufficiency of the vegetables named above, they will be found not only much cheaper, but far richer in flavour, and with more firmness in their flesh than the geese usually sold in the market.—LLEBIO.

PRACTICAL OBSERVATIONS ON THE MANAGEMENT OF BEES.

By Henry Wenman Newman, Esq.

(Continued from page 325.)

HIVES AND BOXES.

THE best of hives for increase of stock, after all, is the old straw hive, so generally used by the cottager. They can be purchased with holes for glasses in the best bee counties. They should stand on wooden floors, the best mode being to have a fixed stand and board, with a moveable board upon it, so that the upper board can be removed and cleaned, and replaced, at pleasure. Mr. Nutt's boxes are ornamental, and the public are much obliged to him for them; but an improvement may be made in them. His theory, that the queen never lays eggs in the side boxes of her colonies, is erroneous, as it is proved that the queen lays wherever there are brood combs. Probably, in a succession of bad seasons, the side boxes have never been completely filled, and the stocks have dwindled (as was the case with my own), which led him to suppose that the queen never laid her eggs in them.

I do not recommend *bee-houses*; they encourage vermin and dirt of all sorts; but I will allow they possess one good quality—probably, if the aspect is s. e., the combs may never be melted by the heat. Neat boxes with glasses are the means of saving hundreds of bees. In a good season the glasses will be filled twice with the purest honey. I shall give a description of the various hives which I recommend; my own straw hives are covered with earthenware pans, which I find the least troublesome. Hackles harbour mice, and other vermin, and if they are not well made, rain gets into the top of the hive, and the combs in that part will be mouldy—desertion by the bees being often the consequence.

The covering I use for my straw hives is the large earthenware pan; between the pan and the hive there should be a little straw or hay. In the hot season of 1846, when in June the thermometer reached 88° in the shade, none of my hives were destroyed by the melting of the combs, although no extra precaution was taken. In Oxfordshire I met with a cottager who had two destroyed by the heat within one week of the end of June, and another in the adjoining parish. All three of these hives had the common straw hackle for a covering, but stones instead of boards to rest on. Bees, in seasons like that of 1846, ought to be shaded with boughs of trees, or covered with wet cloths, from eleven o'clock in the morning until five in the afternoon, unless they are in shaded bee-houses.

No amateur in bees ought to be without the show-bar hive; a small cast, or second swarm, is sufficient to put into one of these hives, but, unless taken great care of, they die in the winter. I have two of these hives. I have seen the queen lay eggs; she goes head-foremost into the cell first, to examine it, she then turns round and goes backward into the cell to deposit her egg. By frequently opening these show hives the bees by degrees become accustomed to it.

All hives and boxes should be looked at once a-day, at least, to guard against accidents. The entrance to a hive may be stopped up, or fifty other accidents may happen. Boxes are constantly infested with spiders, which weave their webs in all directions. These should be swept away, for, if neglected, you will generally find in them several dead bees. The boards should be swept about twice a year; many bee-keepers never do so at all. In a *populous* hive it is safe to do it, but only in cold weather.

The *Huish* hive is pretty, and well intended by the inventor; but, unfortunately, the bees often make their combs in a different direction from what the owner wishes, and then the extraction of the combs is almost impossible. *Boxes*, which I am very fond of myself, in the winter have one good quality: if there be one straw hive in the apiary, that most impudent enemy of bees, the black-headed large tomtit, always prefers the straw, which he nibbles at for ten minutes together to worry the bee; but I never saw him at a box.

The perpetual cry of want of room in hives and boxes may be carried too far; frequently, on examination of my boxes, I have found the vacant space filled with cobwebs, and numbers of dead bees enveloped in them. How often, too, do we see the side boxes begin to be filled, and, when a wet month arrives, the side boxes deserted, and parts of a few combs left untenanted; yet writers persist in recommending the peasants in Scotland to keep as many bees as they do in the splendid climate of Switzerland! If we could bargain for a dozen summers such as 1842 and 1846, a great deal more might be done in Great Britain. The proof how the matter stands is plain: for one stock of bees kept in Great Britain by cottagers, there are fifty in Switzerland, and parts of Germany, where the climate is more equal.

Mr. Taylor's Hive.—Mr. Taylor (whose book on bees has gone through four editions) has certainly invented a new hive, more compact than Mr. Nutt's. The glasses are placed in a very plain and simple manner, and easily taken off when filled with honey. These hives are now to be seen everywhere, and, in good seasons, are very useful as well as ornamental; at the same time, no hives are equal to the old straw hives for productiveness, and they are more free from the vicissitudes of heat and cold. Boxes should be painted a light straw colour, so as not to attract the rays of the sun too much. If hives or boxes are too small, the bees soon make their combs down to the board, and then it becomes a matter of difficulty to raise them for the purpose of cleaning them. Indeed, in a very populous hive, it cannot be done without danger and great annoyance, as the operator will find all the combs glued to the board.

Mr. Milton's Hives.—When visiting the Crystal Palace, I was much pleased with Mr. Milton's hive; he showed me one which was full of honey, about the 7th of June. It is astonishing how his bees must have worked to have filled the combs so full, as there is not much of the *Trifolium repens* in the vicinity of Hyde Park; probably, a strong honey dew on the sycamore trees, or the maple, had something to do with it, and there is a considerable quantity of garden and nursery ground not far off. I admire the simplicity of Mr. Milton's hives; they form a pleasing variety to those amateurs who like to have everything new. I unfortunately did not see Mr. Payne's hives, which, I believe, were there; but I saw Mr. Taylor's beautiful assortment, which I have noticed elsewhere.

THE GOLDEN AND THE SILVER PHEASANTS.

(Continued from page 324.)

WHILE entertaining this strong disbelief in the domesticability of any species which I have yet seen of the genus *Phasianus*, it is only right to state the opinion which other well-informed persons hold respecting birds which are as yet known, in their living state, to but very few Englishmen indeed. Mr. Edward Blyth, the very able and accomplished Curator to the Asiatic Society's Museum at Calcutta, writes, "From what I have observed, I should not think that the Polyplectrons are domesticable, but I have only seen them in aviaries. The *Kallij* pheasants (*albocristatus*, *melanotus*, *Horsfieldi*, *lineatus*, *crythrophthalmus*), I very strongly suspect, are reclaimable. The great Fireback (*ignitus*) I have had extremely tame, but the pair were much too valuable to me to be experimented on, at least in this way." Here are some brilliant subjects for trial; and if, after all, we get no new court-yard pet, we shall, at least, have introduced a magnificent addition to our aviaries. But, to my mind, a great argument that they are not reclaimable, is the fact that they have not been reclaimed by the natives of India. Even the gold and the silver pheasants have been bred with us for quite a sufficient number of (their) generations,

to become as tame as house lambs, if tamability made part of their fortune, or their phrenology. Let the reader contrast all he has ever heard, or known, respecting the docility of *home-bred* gold and silver pheasants, with Mr. Blyth's relation of what is now passing under his eye with respect to *wild* pea-fowl.

"In many places they (the wild pea-fowl) are protected by the Hindoo inhabitants, and become very tame, though unreclaimed.—See an anecdote quoted in my notice of the Indian Cranes, published in Sir W. Jardine's 'Contributions to Ornithology,' 1850. The few I have seen were as wild as they could be, not permitting an approach within gun-shot; and we could only get at them when driven forward by a line of beaters in the direction of our concealed position, picking them off as they flew over. The Jungle fowl and black partridge were, however, our chief objects of pursuit; and I may mention that a wild pea-chick is most undeservedly under-rated in this country for the table. The old birds of either sex are only fit to make soup of. Many are taken alive by certain *Shikaris* (game-purveyors), who occasionally bring them to Calcutta for sale, their feathers uninjured, but the eyes sewn up, and that very coarsely. A row of these temporarily-blinded birds they carry perched on a pole, and they are generally well-fed and in good condition, having been caught some time and attentively fed. *When the ligatures which had closed the eyelids are cut, (and this is a nice operation sometimes, from the festered or united state of the parts, requiring the skilful use of a lancet or sharp pen-knife, yet the bird soon recovers, however disfigured for a time,) they are as wild as any newly-caught pheasant; but placed with fowls and other tame poultry, they are not long in becoming sufficiently familiar, i.e., in losing much of their timidity.* Further, it appears, "The tame pea-fowl of England does not, that I am aware of, differ from the wild bird in any particular whatever. But I have never heard of white or pied pea-fowl in this country, except some of the former recently imported, and which breed here most freely." Unless any newly-captured bird begins soon to make the best of a bad bargain, and, after an indulgence of the first passion of grief and rage at the loss of liberty, tries to look about it with the manifest conviction that "what can't be cured must be endured," like these poor wild pea-fowl after their cruel discipline of temporary blindness, I believe that all hope of domesticating it or its offspring may be deferred in *secula seculorum* (for ages of ages).

Both the golden and the silver pheasants may be considered as modern, though not recent, acquisitions to Europe. They may have been imperfectly known to the ancients by rumour, as well as by skins, or even by a few of their more remarkable feathers. Cuvier, indeed, suggests that the Phoenix of those days was no other than our golden pheasant.—See Pliny's description for the points of agreement. The points of disagreement, and the fabulous portion of its history, are scarcely more inconsistent with truth, than were very lately entertained notions respecting the birds of Paradise, or even than the current and popular belief of the way in which struthious birds are hatched. The golden pheasant does not appear to have been known to Aldrovandi, although he quotes Marco Polo's notice of the Long-tailed or Reeve's pheasant, which states that "in the regions Ergimul and Cirquth (wherever they may be), which are tributary to the Great Cham, very large pheasants are found (supposed of that size, to be in proportion to their appendages), with such a length of tail as to exceed eighteen palms." The imported spoils of our birds may be those alluded to, when he relates that "Ornithologus writes that certain fisherman, at stated times of the year, imitate I know not what kind of flies by means of pheasant's feathers, with which, attached to a hook, they manage to deceive the fish." Such gaudy feathers are in great request at the present day by the gentlemen who successfully trace the course of our salmon streams. But another half-forgotten naturalist furnishes us with a still more precise historic record, as far as England is concerned. Albin Albik, vol. iii. page 34, figures the golden pheasant as "The Red Pheasant Cook from China." He says, "I do not find this beautiful bird described by any author; it was in the possession of the Honourable John Spencer, Esquire, at his house in Windsor Park, where I went by his order to draw

it" (July 21, 1735). His next plate, dated two years later, gives the silver pheasant under the title of "The White China Pheasant." After a description, he adds, "This bird I saw at a lady's at Enfield, where I made a drawing from it. I do not find this bird described in any author." D.

(To be continued.)

ON KEEPING FOWLS FOR PROFIT.

It is an unpleasant task to find fault, especially when it is with one's favourites, but I fear I must, nevertheless, acknowledge that a great number of the fowls which are kept in England are a sad, worthless community, sadly neglected, and sadly standing in need of reform.

According to an insertion in the *Times* a few weeks back (quoting the number given in the trade returns), 108,363,121 eggs were imported in eleven months, giving an increase, I find, of 99,545,202 since 1848. Yet, at the same time that we are going to other countries to supply this advancing demand for eggs—which must be rather stale before they can be made use of—how many thousand families of the working classes there are at home, to whom an addition of two shillings or half-a-crown per week, to the present earnings, for ten months in the year, would be most acceptable; and whose children are daily injured in character, for want of some rational occupation and employment. I speak of this pursuit now as an assistance only, not as an entire occupation. I heard (the intelligence came from a custom-house officer at a port in the West of England, of no very considerable importance) that seventy tons of eggs were landed at the quay, and weighed at the railway by which they were forwarded, in one day. Now, if the hundred and sixty or two hundred thousand hens employed to lay these eggs in a week, could be divided among twenty thousand families near the places where the demand exists, how much more satisfaction there would be in their consumption, than there possibly can be, after they have become many days old, and subjected to the shaking of a sea voyage.

The minimum price for new-laid eggs in London and its neighbourhood is a penny and three-halfpence each, provided the purchasers can depend on their freshness; those for puddings vary between twelve and twenty for a shilling. I believe the price in other places bears about the same relation to the price of other commodities. The facility with which they can be disposed of must of course depend much on the locality, and the distance of a market; but the collection and sale of eggs might surely be arranged and carried out by some one person, for all the small poultry keepers in a neighbourhood, with advantage both to himself and his employers. I think Mr. Richardson mentions, that in Ireland, this matter of collecting eggs is managed by young boys, the amount of whose pay depends on the care and steadiness with which the task is executed. I think this plan would increase the benefit of the trifle earned a hundred-fold, by often making a steady, intelligent man, out of an idle, careless boy. At the present time, when so many farmers, headed by a greatly respected and illustrious promoter of agricultural improvement, are turning their attention towards the rearing of poultry, I am sure there are many who would kindly assist their poorer neighbours with both advice and help in finding a market for the produce of their little hen-yards.

The characters of children are improved, in many respects, by having live stock entrusted to them. Pretty creatures to love and pet, and tend with care.

I will conclude this article with a few plain hints for the use of such persons as may wish to adopt my suggestion, but who may not be at present acquainted with the practice of keeping a few fowls with economy.

Be careful, in the first place, to feed with economy; let the fowls have an abundant supply of food, but take care that none is wasted. Middlings, for common use, is as good as barley-meal, and half the price. It will not be found bad economy to buy oat-meal for the chickens, although it is rather dear. Give a little meat. The liquor in which bacon or other meat has been boiled is very good to mix with the meal.

In the second place, do not encourage any lazy ones among the little flock. Do not keep a hen that lays less

than two eggs in three days, without you have some good reason for sparing her. If the hens which ought to lay are inclined to take holiday (except during the moulting), remind them of their duty, by giving warm food every morning until they lay again, but do not let fowls eat of it which lay well without. Let there be a supply of oyster or shell-fish shells broken up, or old building rubbish, as fowls *must* have lime in some shape for their egg-shells.

In the third place, carry on your little trade with *perfect honesty*—have no concealments. Write the date upon the eggs, and after they are four days old, sell them no longer as new laid eggs, but at a somewhat cheaper rate. I believe there would be a much greater demand for fresh eggs than there is now, if those which are sold as such could be fully depended on.

Fourthly—keep as little unproductive stock as possible. The most expensive time with fowls is from when they cease to be quite chickens, until they become productive. It is therefore advisable, for economy's sake, to pick out all not intended for stock, and sell them for the table at three or four months old. Pullets of common breeds will often not lay until they are eight or nine months old; some of choicer kinds lay much earlier.

I have never found any kind of fowl so good, or so profitable, as the Cochín-China, and I hope to see the day arrive, *shortly*, when the poor man, as well as the rich, may possess his cock and hens of this excellent sort. They are at present dear, but with a little time and patience, I am sure a stock might be got together at small expense, and their great superiority as profitable poultry is so well worth the effort, that I cannot help offering a suggestion on the subject. I speak of the Cochín-China not as *fancy*, but only as *productive stock*.

First. Make it your business to know thoroughly what the true bred fowls should be, for if you attempt to obtain them without this thorough knowledge, your trouble is only likely to lead to disappointment, and to the loss of your little capital. The general characteristics of this fowl are now too well known to need repetition here, but when I select, I like to take the bird in my hand; it should be very plump, and broad made, not too tall, and *very* deep from back to breast. The *quality* of the fluff is very important; on raising that on the thigh with the hand, there is as much difference in the texture in the choicest specimens of the Cochín-China fowls, and in some of a coarser kind, as there is between floss silk, and cotton. When you know what the fowls should be, and where to find some of first-rate quality, get together half-a-guinea, or any sum you can manage, and with it purchase as many eggs as you can get. Where you buy the eggs, notice that the cocks are good, and take care to know which hen laid your eggs; any amateur who obliges you with a few eggs will pardon you for being thus particular, when he knows of how much importance this little sum of money is to you. Give these eggs, and no others, however small their number, to one good hen that you can well depend on; raise the chickens with great care, and feed them *very abundantly*. When they grow up to be cock-birds and pullets, sell the young cocks, and keep the two best pullets; if you are lucky enough to have more than two pullets, you may be glad to let the remainder go with the cocks, as an inducement to purchasers to take them, for it is often very difficult to get rid of cocks alone. With the money thus produced, buy a good young cock, the best your funds will permit you to choose, and take care that he is not of the same blood as your pullets. The following spring you will have young fowls fit to breed from at once, and which will continue to increase in value and good qualities for a long time.

I am really almost ashamed of returning again and again to this well-worked subject of Cochín-China fowls, but I find them so very fit for the purpose I now advocate, that I cannot forbear. It is a recommendation that they are easily kept to the place intended for them; while the working man is at his daily occupation, he cannot afford to let his hens amuse their leisure by turning his neighbours into enemies, by trespassing and depredations; this need not be feared with Cochín-Chinas. They also come to maturity, and begin to lay so early, that at the age when other fowls are most expensive, and when eggs are scarce, *they* begin to produce.

ANSTEE BORN.

JUDGING FLORISTS' FLOWERS.

THERE is one, and only one, way to judge correctly florists' flowers shown in stands. How often does it happen that judges go into the exhibition room to award prizes without either pencil or paper. They look from end to end, and returning say, "We are going to have a very hard task, for the stands are really good, but we must make haste, for the doors have to be open at such a time." After having gone several times over a dozen stands of dahlias, they say, "Put the first prize on that, we all agree this is the best.—Now for the second." Then over they go again, and at last find one they think the next best. "Now for the third."—"Well, I think that should have it; we had a sad job to say which of those had to be second; well, put it on, we have a vast deal to do yet, and we have been a long time over this lot." Then the sixes are got over in the same uncertain way.

Now, when competition is anything like equal, no man can judge by the eye alone. He cannot lift stands together to compare, as he could in class showing; but when judges proceed to examine, if they will follow the plan I lay down, they cannot make a mistake. I take two stands of twelves,—dahlias, for example, but it holds good in all stand-showing. Let one of the judges have pencil and paper, or note-book, and let them start at the front row at the left-hand corner. I will suppose there are two stands, and call them A. and B. By once going over, the judges readily see which stand has the most good blooms, and which the next, and so on. I give nothing to bad or middling flowers; they must go for nothing. The exhibitors must put better in, or they will not win a first prize, if there is a stand that has one point more. It will be the means of having better stands on the table in future, for the exhibitor will not run his blooms so far, tempted by a desire to win many prizes, nor put a part good into the twenty-fours, a part into his twelves, and a part to the sixes, instead of making one good stand.

If two stands have equal points, I divide the prize between the two. Judges thus judging, can show their notes of each stand, without the least fear of well-founded dissatisfaction, and show where such and such stand or stands lost the prize by bad blooms. I do not write because I think this plan will do, but from *experience* of its success; but the judges must be competent, and know Mr. Glenn's standards.—J. CROSSING, Felton Park, Northumberland.

DAHLIAS.—STAND A.

*	*	*	*
Bad	Good	Good	Bad
Outline			Sunk in the Eye
*	*	*	*
Good	Bad	Good	Good
	Over Small		
*	*	*	*
Bad	Good	Bad	Good
Eye Sunk		Coarse	

DAHLIAS.—STAND B.

*	*	*	*
Good	Bad	Good	Bad
	Sunk Eye		Outline
*	*	*	*
Good	Good	Bad	Good
		Reflexes	
*	*	*	*
Good	Bad	Good	Good
	Quilly		

B wins, having eight points; A but seven.

YORKSHIRE ASSOCIATION FOR THE IMPROVEMENT OF DOMESTIC POULTRY.

THE first show of this society was held on Thursday and Friday, 12th and 13th February, in the Riding School, Halifax. It was well attended, and was the finest exhibition of domestic poultry ever seen in the north of England. The judges were—Edward Bond, Esq., Middleton Lodge,

Leeds; Samuel Nutt, Esq., York; and James Bissell, Esq., Birmingham. The honorary secretary, to whom much praise is due for the success of the show, is W. H. Heaton, Esq. The successful exhibitors in each class were as follows:—

Spanish.—Captain Wyndham Hornby, R.N., Knowsley, Prescott; John Henry Peck, Esq., Wigan.

Dorking.—Watson Chapman, Esq., York; Captain Wyndham Hornby, R.N., Knowsley, Prescott.

Cochin-China.—Mrs. Hosier Williams, Eaton Mascott, near Shrewsbury; C. H. Dawson, Esq., Beamsley Hall, near Skipton; Charles Barstow, Esq., Halifax; Robert John Simpson, Esq., Sandbach, Cheshire; James Cattell, Esq., Hatfield House, Birmingham.

Malay.—James Dixon, Esq., West Brook Place, Bradford; Mr. Pearson, 4, Britannia Street, Leeds; Mr. George Jackson, Penley, York.

Game.—Samuel Armitage, Esq., Bradford; Henry Kilner, Esq., Laverack Lane, Lightcliffe, near Halifax; William Smith, Esq., Halifax. *Golden Pheasants*.—Henry Clapham, Esq., Airewell, Keighley; Richard Adams, Esq., Selby; James Dixon, Esq., West Brook Place, Bradford.

Silver Pheasants.—Henry Clapham, Esq., Airewell, Keighley; William Ludlam, Esq., Bradford; Joseph Kinder, Esq., Elmwood-grove, Leeds.

Chittaprat.—Mr. Joseph Tuley, Matchless House, Keighley; William Smith, Esq., Kent House, Halifax.

Poland.—James Dixon, Esq., West Brook Place, Bradford (Silver); John Hadwen, Jun., Esq., Knebworth, near Halifax (Silver).

Any other Distinct Breed.—Courtney Kenny Clarke, Esq., Haugh End, near Halifax (Columbian); John Taylor, Jun., Esq., Cressey House, London (Andalusian).

Bantams: Gold or Silver Laced.—Mrs. Hosier Williams, Eaton Mascott, Shrewsbury (silver laced); Jeremiah Stansfeld Rawson, Esq., Greenrode, near Halifax; John Greenwood Sugden, Esq., Steeton Hall, Keighley (gold laced).

Bantams: Black, White, or any other Variety.—James Dixon, Esq., West Brook Place, Bradford (black); Samuel Armitage, Esq., Bradford (white).

Geese.—Henry Ambler, Esq., Watkinson Hall, near Halifax; Captain Wyndham Hornby, R.N., Knowsley, Prescott.

Ducks.—Captain Wyndham Hornby, R.N., Knowsley, Prescott; James Dixon, Esq., West Brook Place, Bradford.

Turkeys.—Edward Akroyd, Esq., Denton Park; Henry Ambler, Esq., Watkinson Hall, near Halifax.

Extra Prizes.—For the best cock in the exhibition—James Cattell, Esq., Hatfield House, Birmingham (Cochin-China cock). For the best hen in the exhibition—Robert John Simpson, Esq., Sandbach, Cheshire (Cochin-China hen.)

Extra Stock.—The judges highly commend the Cochin-China fowls sent by Thomas Sturgeon, Esq., Manor House, Grays, Essex.

THE DOMESTIC PIGEON.

(Continued from p. 281.)

FOOD FOR PIGEONS.

In their natural state they eat all kinds of grain, but prefer those of leguminous plants. In a state of domesticity one cannot so much vary their food, consequently the vetch or tare has been chosen, which appears the most economical and the best to feed them with habitually. However, in those countries where the vetch cannot be procured, its place may be supplied by other grain, wheat, barley, buckwheat, lentils, peas, small beans, maize (especially that small kind called "Forty-days").

All these kinds of food may be given without precaution to the dove-house pigeon, but this is not the case with regard to those of the dove-cote, which are much more delicate, particularly when their races are pure. Some of this food, and especially wheat, relaxes them much, makes them cold, and often causes a dangerous scouring, besides which it frequently occasions the eggs to be soft, and retards the laying. As soon as these inconveniences are perceived, they must be remedied, by giving the pigeons canary or hemp seed, but in a small quantity, because these seeds act in an opposite manner too powerfully.

Although the vetch may appear to be the best food for pigeons, it still has its inconveniences, particularly when too new. It then causes the young pigeons a diarrhoea, which may become fatal, unless quickly remedied by means of salt, as we shall describe presently. There is no economy in purchasing cheap vetches, because the birds consume more, and they are not so nourishing. Vetches should be chosen heavy, hard, of a bright and deep black, and a true economist cannot do better than have his provision a year in advance, for the seed agrees better with the pigeons when two years old than the year it is grown. Some amateurs have attempted to replace the vetch with the *small garden bean*, but its size prevents the small species from swallowing it, and all of them can only disgorge it with great difficulty, painfully, and sometimes dangerously, particularly among the Pouters. *Grey peas* do not present so many inconveniences.

If we see that the vetch does not agree with the dove-cote pigeons, instead of replacing it with only one kind of grain, we shall do better by mixing all those we have just named; nature would dictate to each pigeon that which would best agree with it. The dove-cote pigeons, although more delicate than the others, still subsist on a greater variety of food. They easily accustom themselves to eat the crumb of bread, the paste given to poultry to fatten them, and even with meat cut very small. Should they be very much pressed with hunger, they will seek food on the dunghills, and even in filth. They are extremely fond of the sorrel leaf, and sometimes peck it in the gardens. Some pigeons will even eat insects. When pigeons are backward in laying, and require urging to set, we must give them food prepared for them, which consists of one quart of canary seed, one quart of hemp seed, and one quart of buckwheat. We may throw them a few handfuls of this daily, but only during winter and the moulting season. This food warms them, and soon induces them to brood. We may, without any gradual transition, make them do without any other food than this; but that is not the case with regard to depriving them of it, and yet it is necessary to wean them from it as soon as it becomes useless, that is to say, when their young ones are hatched. We then begin to mix some vetch seed with it, at first in small quantities, and increase it by degrees, so that by the end of ten or twelve days it is all vetch.

All pigeons are passionately fond of salt. Even when an old wall loaded with salt-petre is in the neighbourhood of their residence, we may see them fly to it in great numbers every hour of the day, and fight desperately to approach the place where the mortar is most saline. This taste amounts with them to an instinct for the preservation of health, for, as has already been remarked, salt is always very beneficial to them, and frequently even cures their disorders. Amateurs also give it them, but prepared in the various manners that we are about to enumerate as the best.

In the south of France, and particularly in the environs of Lyons, they try to procure the body of a fox, or, if this cannot be obtained, they take a dead cat, flay it, and fill the cavity of the body with cummin seed and sorrel leaves. It is then soaked in water in which as much salt has been dissolved as possible. After having been left in this brine for a fortnight, it is taken out and placed on the spit before a large fire. As it roasts, they sprinkle it with salt powdered very fine, and leave it at the fire until it is nearly all dried up. It is then taken into the dove-house, or dove-cote, and suspended in a place where the pigeons can easily peck it, which they do so greedily, that in a very short space of time there is nothing remaining of it but the skeleton. The farmers who employ this method assert that they attract by this means the pigeons from the environs, and that when these pigeons have once tasted the salted fox, they adopt the dove-house for ever.

Some authors direct salt to be given in the following manner:—Take ten pounds of vetch, or such other farinaceous seed you like; add to them one or two pounds of cummin seed. Have some clayey earth well sifted, and sufficiently moistened to be kneaded by water in which you have dissolved two pounds of common salt, and mix them thoroughly. This kind of paste must be made into cones, and exposed to the heat of the sun, or placed in an oven moderately warm, until their dampness is entirely evaporated; they must afterwards be kept in a very dry place. Several of them are taken into the dove-house and dove-cot, where the pigeons come and peck them. It has been remarked that the seasons in which they attack these cones the most is winter, during the continuance of rain, when they feed their young, and still more so while they are moulting. This clay, thus prepared, is not only a preservative against sickness, but it is a stimulant to laying.

Some persons content themselves with merely scattering salt in the dove-cote, or dove-house, without its having undergone any preparation; others place it in a vessel, where the pigeons go and peck it. These two methods are both bad, the first because the salt is lost, or made dirty by the filth, the second because they can abuse what at first warms them, but ends in making them ill. The manner of giving salt which appears to us most preferable, is to give them the tail of a salt cod-fish to peck, or a mackerel, or any other fish prepared in the same manner—that is, strongly satu-

rated with salt, and dried. Pigeons are often seen to fight over it, and in a short time leave nothing remaining of it but the bones. The tail of a cod ought to suffice for fifty pigeons, and if other fish are made use of, the same proportions may be followed.

It will not do to give pigeons the first water that comes to hand; for example, that from a pit is very prejudicial to them when it contains any saline matters, which is the case with most of the water in the pits in Paris; but when it is pure, on the contrary, it is better for them than any other. Bad water is known by soap not dissolving in it, and when it does not cook vegetables well. River water may not only be given to birds, but to every animal; however, if this cannot easily be obtained, they will do very well with the same that man makes use of. Sometimes pigeons will stray eight or ten leagues from their dove-house, and go down to the sea-shore to peck the saline efflorescence left by the waters on the downs and rocks which are covered at high tides. They wander still farther in search of salt water.

(To be continued.)

DOMESTIC PIGEONS.

EIGHTEENTH RACE.

TURBIT PIGEON (*Columba turbita*).—This is a very small race of pigeons, but little larger than the turtle dove, with which Buffon pretends that it produces mules or mongrels. Their beak is short, and their head resembling a toad's—that is to say, that in the handsomest varieties the eyes are extremely prominent in the upper part of the skull, where they form two very strong protuberances, as well as the occipital bone, which forms a third, and gives their head a resemblance to that of a toad. Although they have a different physiognomy from the preceding race, their feet are naked; they have the general and elegant form of the Jacobins, from which they differ in their cravat, and in their not having any cowl. These birds, although rather heavy, sustain their flight for a considerable time in a straight line, and always return to their dove-house, whatever distance they may be from it. This has caused them to be preferred for some time in Belgium, where they are very commonly made use of as carriers. Those whose surprising and rapid flight the periodicals speak of, belong to this race. They set them at liberty in Paris, and fourteen hours afterwards they arrive at their dovecote in Liege, although these two towns are seventy-two leagues apart.

FRENCH TURBIT (*Columba turbita gallica*).—The body is



always white, except the cloak, which may be purple, chamois, streaked, red, or grey. It is a very pretty pigeon, well made, and having a very clean appearance. It does not couple freely with other species, or produce well, because the excessive smallness of its beak often deprives it of the power of feeding its young, which cannot be reared by others, having the same defect as the parents. They also allow themselves to be easily seized by birds of prey. In consequence of all these reasons, added to the smallness of their stature, they are but little reared in the neighbourhood of Paris; however, in Belgium, we find several dove-houses tenanted by these birds, especially with the variety that has

a white body and blue wings; the Belgians also prefer it to carry dispatches.

ENGLISH TURBIT (*Columba turbita anglica*).—A short beak; simple filament round the eyes; iris black; plumage of an amethyst blue, with black bars on the wings. This pretty variety is very pure, for it cannot be crossed with any other without entirely losing its colours. It is the most esteemed, and the one that produces the most.

BLACK TURBIT (*Columba turbita maura*).—It very nearly resembles the preceding, but has a black cloak.

WHITE TURBIT (*Columba turbita alba*).—It is like the others, but its cloak is white as well as the rest of its body.

CRESTED TURBIT (*Columba turbita cristata*).—This pretty bird is only common now in Germany, and differs merely in its tuft.

(To be continued.)

PEA SOWING.

I SHOULD premise that my garden is formed over a partly exhausted brick-field, the subsoil of which is a heavy clay, while the upper stratum I may call a heavy loam. Now, in such a soil, I find well-decomposed manure of but little use, whereas vegetable manures, with a small quantity of the above, are most useful, for I have often traced the most vigorous roots occupying the places formerly held by a stick or stalk now decomposed.

My garden is small, but with the six sowings of peas as under, I contrived to have them from the 10th of June till the 4th of November. With peas and our Michaelmas goose I feasted six persons, and on the 14th of October had a similar dressing. On the 4th of November I gathered about half a teacup-ful, and doubt not that had I sown on the 1st instead of the 6th of August, and in an open instead of a sheltered quarter, I should have had ten times as many.

My times of sowing were as follows:—1. *Isherwood Railway*, beginning of February. 2. *Bishop's New Longpod*, middle of March. 3. *Bedman's Imperial*, middle of April. 4. *Knight's Tall Green Marrow*, end of May. 5. *Bishop's Longpod*, end of June. 6. *Bishop's Longpod*, 6th of August. I was not quite satisfied with *Isherwood Railway* pea, and this year have begun (3rd of February) with the *Longpods*, round the edges of 48 pots, and which, when fit, I purpose turning out entire, at about 18 inches apart, for as to putting peas into my ground in its present state it is not to be thought of.

If one of your talented coadjutors would undertake the management of a frame, I mean a *greenhouse frame*, he would give pleasure to thousands, for with such a structure, and without any artificial heat, except that given out by a bottle of hot water, I have had flowers throughout this winter, and I am convinced that the capabilities of the frame are not valued as they ought to be. Shall I send you a sketch of mine? [By all means, and state your mode of managing. Ed. C. G.]—S. F.

ANAGALLISES: THEIR NEGLECT AND LOSS.

In speaking of this plant as a bedder, it is generally understood to be "blue." Yet there are other colours equally distinct, if not equally pretty; and, considering the utility of the plant for flower-garden purposes, I am astonished at so little improvement in the varieties often seen in cultivation, as the "blue" commonly grown is no better than the same colour was twelve years ago, when I first used it in a separate bed; but, somehow, seeds of it do not germinate so freely as those of many other things, which perhaps accounts for the deficiency of varieties, yet we ought not to lose distinct kinds when once obtained, yet I never hear of, or see, the pale variety which some years ago used to go under the name of *bicolor*, or *bicolor grandiflora*, which in point of colour much resembled a pale petunia, or (if that term be indefinite) the *Nierembergia angustifolia*. In fact, it so much resembled the latter, that I suppose it has fallen into disuse, owing to the latter being easier kept through the winter, and in other respects equally useful; but then, with such a desirable colour, what were our hybridisers doing not to make use of it to introduce other shades of colour, as has been done in the petunia? Now, besides this

bicolor, there was a good crimson or blood-coloured one, superior to the dingy dull red we often see planted. This, too, has evidently been lost, as I do not remember seeing it since 1843. The pale one I had a year or two later, but having lost them both, I have never been able to set my eyes on them again. Now we all know what a valuable plant the blue *anagallis* is—no other plant combining the many qualifications of bright colour, good habit, &c., which it does; I am, therefore, surprised so little has been done in the way of improvement; on the contrary, unless the kinds mentioned above be in cultivation, we have certainly retrograded. Perhaps some reader will, through these columns, let me know if they yet exist.

I beg to thank the many kind friends who in reply to my inquiries concerning the geranium *Moore's Victory*, pointed out where it could be obtained, hoping also they, or some others, will be able to throw light on the queries above, as I shall be glad to hear of this plant's restoration; besides, I think it is capable of vast improvement in many points, and would beg to request some of those ardent admirers of flora, who seem determined to swell our list of verbenas to the bursting-point, to try their hands at *anagallis*. A new field exists there for them, and one assuredly of great promise.—S. N. V.

LEAVING POTATOES IN THE GROUND.

On the 14th of February, 1851, I commenced planting the "Pink-eye," a variety much and justly esteemed in this country; and on the 30th of July I lifted the first of the crop, which I found most productive, very free from disease, and some of the tubers of so large a size, that I kept a few to exhibit to friends. On the 9th of August I stopped digging, leaving the remainder in the ground, intending to keep them for seed. On the 6th of November I raised these, and instead of finding them of the size I expected, I was much disappointed at seeing that *all the large potatoes had melted away, being thoroughly rotten, while those which I had taken up in the early season to exhibit, remained in the house as good as they were on the day I dug them.* This, I think, clearly proves that the plan adopted in this country, of leaving the seed in the ground to harden, is not judicious.—B.

VINE BLEEDING.

SEEING a remark about the stopping of the bleeding of vines in one of your late numbers, I beg to state that *collodion* is a most effectual remedy for the bleeding of greenhouse plants generally, and I have no doubt would prove equally so for vines, but not growing them, I cannot speak from experience. Your lady subscribers will find it a much more elegant remedy than any other, it merely requires to be rubbed on the dry surface with the finger, when it forms an impervious film.

I was induced to try it from having used it to check bleeding from small wounds, &c., in the human subject. You may take advantage of this hint, also, if you happen to cut yourself in shaving, or have an abraded surface. *Collodion* is cheap, and can be procured at any chemist's.—I. H. N.

TO CORRESPONDENTS.

. We request that no one will write to the departmental writers of *THE COTTAGE GARDENER*. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of the Cottage Gardener, 3, Amen Corner, Paternoster Row, London."

ZINC CHURN.—I. B. L. says—"We have one cow, and have used a zinc churn for some time, and my experience of it is this—that it is no better than any other. In hot summer weather the butter certainly was made in twenty minutes. The printed directions say the temperature of the cream must be 60°, and in cold weather this must be attained by the application of boiling water. This, however, we found, upon two or three trials, to produce so rancid and disagreeable a flavour, that we preferred patiently churning for two or even three hours, in order to have our butter sweet. I think we have used one churn for seven months, twice a week, and it has become quite leaky; I suppose it requires repairing. It has one great advantage—viz., it may be placed on a table, and churned with no trouble at all, beyond steady perseverance."

HEAVENLY OR CELESTIAL TREE.—Our friend *Queen Mab* says,

referring to our No. 142, that an enquiry is made by a correspondent (D. P.) as to the Heavenly or Celestial tree, and replies that "*Ailanthus glandulosa* is commonly called the 'Heaven-seeking tree.' Its German name is 'Hörsiger Götterbaum,' or 'Tree of the Gods;' and in Italian 'Albero di Paradiso.' This, therefore, must surely be the Heavenly or Celestial tree enquired for by D. P."

REMOVING LARGE TREES (——).—Your idea that, "because a large tree has not been transplanted in the same position as regards the wind and sun" is the main cause of failure, may be true near the sea coast, but that has nothing to do with failure or success in inland situations. We have invariably, for more than twenty years, turned the worst side of a tree or shrub to the sun when transplanting it, knowing that that would bring the head to a better form, after a few seasons. The real cause of failure we take to be cutting the roots too much, and planting at unseasonable times.

SIDONIA GERANIUM (*Constant Reader*).—Many thanks for your communication. Mr. Beaton would be delighted to get the North of England variety which caused *Sidonia* to seed with you, and also a morsel of the very *Sidonia* that seeded. Next May would be time enough. Please to repeat the experiment by hand next summer, and use the pollen of *Sidonia*, as well as that of the other variety, and prove how practice agrees with your theory, in which, by the way, we also concur.

TREE CARNATION (*Constant Reader*).—This is a very old and distinct variety, and there are several new ones now in cultivation, and are as plentiful as blackberries about London. The new ones flower very late in the autumn, and early in the spring, as well as through the summer; in fact, like hybrid perpetual roses, and they are very easy to manage in pots and out-of-doors. In forcing they will not endure so much heat as the old clove carnation, or the *Anne Boleyn* pink. About 55° in winter is all they stand with us.

SOLANUM JASMINOIDES (*Ibid*).—The flowers are snow-white, and the plant is much harder than the common passion-flower, and as plentiful about London as any other fine creeper. Cut down the *Passion-flower* late in April to within a yard of the ground, and you may rely on seeing some of its flowers next August, if not sooner, unless the plant is very weak indeed, and if it is, cut it as low as you see buds or eyes. W. Heaton, Esq., Copley Wood, Halifax, will give you probably the information you require about *Cochin China fowls*. All the *Cineraria maritima* is gone.

POLAND POULTRY.—D. D., *Delaton*, can obtain a pure bred Black Poland hen, by applying, with his full address, to Sarah Cole, the Rev. E. S. Dixon's, Cringleford Hall, near Norwich. There is also a cock, the only objection to which is, that he shows a red feather or two in the wing covert. A post-office order for £1 to Sarah Cole, will secure the pair, the hen alone being worth the money to breed from. Mr. J. Bailey, 113, Mount-street, Grosvenor-square, would supply Gold and Silver Polands.

FLOWER TUBS (J. B.).—Your plan will do remarkably well. The three tubs, with "lugs," or handles, to carry them about by, filled with *Lucia Rosea*, and edged with *Verbenas* to hang down, placed on the grass-plot, will look very gay, and pay you well for all your trouble. But you ought to have a fourth to have pairs, else you must be very careful how you place them, otherwise the plat will look like a pig with one ear. If you cannot get the fourth tub, form one of the three into the shape of the British crown, with small rods hooped over, first from lug to lug and then the contrary way, and plant *Nasturtiums*, or *Canary plants*, to run over the rods; and place this one in the middle, and call it the Queen Tub; the other two keep as you propose.

ANTHOLYZA, &c. (W. J. N.).—There are no such plants known to science as *Antholyza coccinea*, *purpurea*, and *rosea*. They must be some local names, of which no trace can, of course, be found in a scientific catalogue, like *The Cottage Gardener's Dictionary*.

PHLOXES (*Ibid*).—We do not know a Phlox "of the colour of the Emperor of China Verbenas." Do any of our readers happen to know of such a Phlox? Seedling Phloxes are extremely numerous, but we shall give you the names of half a dozen of the best and most distinct colours shortly.

YOUNG ROSES (*Ibid*).—The young roses you planted last November must be pruned, and that very closely, about the end of March or early in April.

CHRYSANTHUMS (*Ibid*).—Four feet apart will be the proper distance to plant *chrysanthemums* for training against pailing or walls. We cannot recommend a particular arrangement of the colours: that depends on individual taste. The colours of the best are given in our lists of last autumn.

TROPEOLUM (*Correspondents*).—There is not a plant of that name known to science, and therefore not to be found in *The Cottage Gardener's Dictionary*. Probably some outlandish dealer manufactured that name for *Tropeolum speciosum*. They manage these things cleverly in some parts of the country, but you may rest assured that no *unauthorised* name of any useful or ornamental plant is omitted in the dictionary.

REMOVING BEES (*Hopeful*).—These are in a Nutt's hive, and you wish them to travel by railway. Secure the sides of the centre box either with board, or the tin sliders; put the box upon a floor-board, the exact size of it, and tie up the whole securely in a cloth, and convey them in your *hand the whole distance*, thus they may be removed with safety in March.

REMOVING BEES (D. Powell, junr.).—We have ourselves removed two stocks of bees into a greenhouse within the last week, which greenhouse is not more than two yards from the place they have occupied during the last year, but even conveying them this short distance took two months to effect, by removing them only a few inches at a time. By this method not a bee was lost, whereas, had the stocks been removed the whole distance at once, they would in all probability have been destroyed, or so depopulated, as to be almost valueless. If your stocks have each of them ten or twelve pounds of honey in store, they will not require feeding, if they do, barley-sugar may be pushed in at the entrance as you propose. We use a zinc pan for water ourselves, with wood float. Use either rain or spring water.

FLOWER-BEDS (Violes).—You will be pleased to hear your arrangement is highly approved of, and the plan thought beautiful, but a little alteration is required in the former, and it will be noticed next week.

HEATING A PIT (R. R.).—You can heat the pit as you propose very easily, and you can keep plants in pots in it all the winter, or strike cuttings in it in the spring; but recollect you cannot plant out anything to grow in it, as cucumbers or melons, because the roots would soon reach the fire, and get burnt. Tan would be the best thing for filling between the sashes for cuttings. The plan has often been tried.

CACTUS OR EPIPHYLLUM CREMATUM (Highburyensis).—This we treat exactly as we do the others, though it seems a little more tender than *Speciosissima*. We think you would have succeeded better if you had placed it against a wall in August and September, instead of keeping it in your greenhouse. Your general treatment is correct. It did not bloom very freely with ourselves.

OLD YELLOW CABBAGE ROSE (Ibid.).—This does well frequently on an east or west wall; encouraged to grow, stopped so as to cause it to throw out spurs, which spurs or shoots are slightly shortened, and from them the flowers are produced. Most rose dealers can supply it, if we are right as to the sort. We shall be glad to receive the rose notices.

ECONOMICAL GREENHOUSE (Learner).—We should be glad to oblige you, but fear we cannot do so without a rude draught of the garden and buildings. We cannot see that you can have either a useful or economical greenhouse constructed on a border four-and-a-half feet wide, and one part four feet. How are you to get into it, and walk in it, and yet find room for as many plants as would be worth while for you to have upright glass and roof glass for? You speak of having a dung-bed at one end, and for this width we would advise a bed or pit all the way you propose going. You could make a hothed of one end for sowing seedlings, starting dahlias, &c., and the other part would enable you to keep all the plants you name, and greenhouse plants in general, over the winter, without artificial heat, but by using covering in cold weather. If you have the back wall low, a low one in front would do, say two feet in height, and with a two-inch pipe for hot-water, you might do anything. As in such a pit the sashes would be moveable; they would cost you more than you might manage a fixed roof for, *a la Rivers*. If we have mistaken you, write again.

VINES (M. H.).—You have done quite right in protecting the wood of your forced vines; the frost is sometimes exceedingly injurious, we have known them killed outright by sudden exposure. There is no necessity to hayband them; they do well thrown on the ground, with a little litter tedded over them.

UNTHRIFTY TREES (Tigonic).—We have little faith in grafting trees the roots of which are "ill at ease," the correct presumption, we fear, in your case. Nevertheless, as a last resort, well-known hardy kinds will infuse fresh blood. What would replanting do, with a knowledge of the evil well ascertained? You cannot blame climate at any rate. As for your cankered ones, you have no other alternative. Two years' wood will be sooner fruitful, one year's will grow more freely. Scions are best cut a month before grafting, placing them with their heels in cool, damp soil.

HYACINTHS DONE FLOWERING (M. D.).—Your hyacinths in glasses may be planted in loose, light soil. Not a leaf nor root ought to be injured or checked, either by a want of water or cold. It would not do to plant them out-of-doors at present; you might grow them on in pots until May, and then turn them out into the borders without disturbing the balls.

EARLY PROLIFIC RHUBARB (J. Wilson).—We know of no one to whom you can apply but to the raisers, Messrs. Rendle, Nurserymen, Plymouth.

BOILER (Alpha, Dublin).—Write to Mr. Fannell, 56, Fetter Lane, Holborn. The work you mention will, we believe, be published in a separate form.

WORMS IN PIGS (Wordstry).—To prevent these, feed them when young upon more generous food, and always give a little salt in their food; to destroy them, give the pig a pill of Venice turpentine, as large as a marble, mixed up with fat, so that he will eat it without trouble; next day give a dose of castor oil; third day, give no medicine, and then repeat the turpentine and oil. Continue this course until the worms are removed. The weed you enclosed, called in your neighbourhood *Hay-rife*, is usually called *Cleavers*, *Catchweed*, or *Goose-grass*, and by botanists *Galium aparine*. It is an annual, so if you prevent its seeding you will extirpate it. *Harif airmeirigh* is the Irish name.

RENDERING EGGS UNPRODUCTIVE.—More than one correspondent blames Mr. Punched for rendering his eggs unproductive before he sends them to market. This blame is totally undeserved. That gentleman is perfectly willing to sell fertile eggs at a price commensurate with the expense of getting together his valuable stock. The overplus, those eggs which he sells at the common market price, he renders unfertile, otherwise no one would give him the fair higher price.

STRAWBERRY BEDS (Acquisitiveness).—Tanner's bark as a thin covering for these was recently recommended in our pages. It keeps the soil moist, and the fruit clean. *Cistus dependens* is a worthy rival of the fuchsia, and quite as hardy. Your proposed mode of constant ventilation is good.

STEEP BANK (W.—County Cork).—We should put the wall at the top of the bank, and by judicious management of the soil make the three-feet-wide border sufficient for the roots of the wall-trees. The bank itself, which is so steep, and which you purpose to cover with flag-stones, we should also trellis, and grow vines and other wall-trees upon, under glass, according to the plan described and drawn in our No. 21.

LAURENTINUS (Amateur).—You may readily increase it by layering the lower branches this spring. Its botanical name is *Viburnum tinus*. Thanks for your other news, which you will see inserted in a previous page.

GOOSEBERRY-TREES (L. R. L.).—No trees do well turfed over their roots. Why not leave round each a circle of two foot radius untouched?

These circles, with a low trellis of iron round them, would look very neat. You may bud your lemon upon the orange stock in August.

FOUR VINES FOR FORCING (Reclor).—1 Dutch Sweet-water, 2 Black Hambro's, 1 Muscat of Alexandria. For cool houses—1 Muscadine, 2 Black Hambro's, 1 West's St. Peter's. Useful pot Vines—Black Hambro's, Frontignans, Muscat of Alexandria, Dutch Sweet-water, Royal Muscadine. Note.—The Mill-hill Hambro's is so well spoken of, that it might take the place of West's St. Peter's in late houses. The above will be a safe collection on a small scale.

NAME OF PLANT (Queen Mab).—Yours is some variety of the *Quercus ilex*. There are several varieties of this tree, and even the leaves vary much on the same specimen, as to being saw-toothed or entire. Of Fastigiata, or pyramidal-shaped plants—such as *Thuja orientalis*, and its varieties, *Cupressus sempervirens*, and any of its varieties, *Garrya elliptica*, a very beautiful plant of compact habit, the *Tree Roses*, and *Ewonymus japonicus*, would suit you.

CALENDAR FOR MARCH.

ORCHID HOUSE.

ARRISES, and other similar Indian plants, will this month be growing rapidly; give them fresh sphagnum, if in wire baskets; if in wooden ones, renew them, and bring the roots within the baskets amongst the fresh sphagnum. **AIR**, give more abundantly as the days lengthen, and the sun obtains more power. **BLOCKS**.—The plants on these must be syringed twice a-day at least, as they will now be growing rapidly. **BASKETS**.—Dip these in the cistern twice a-week; if very dry, allow them to remain in the water an hour or so, till the hard lumps of peat are thoroughly wetted. **BARKERIAS**, set to work, by giving water freely. **POT CATASTUMS**, **CYCNOCHES**, and other similar-habited plants; they will now be growing. **DENDROBES**, see last month. Such as are in flower remove, if possible, to a cooler house; they will then last much longer in bloom. **HEAT**, towards the end of the month bring up to the maximum. *Indian House*, 80° to 85° by day, 70° by night. *Mexican House*, 70° to 75° by day, 60° by night. The highest heat to be when the sun shines. **INSECTS**, keep a watchful eye upon, and destroy the moment they are perceived. **MOISTURE IN THE AIR**, keep up a large amount of, by keeping the walks, platforms, and walls frequently flooded. **POTTING**, proceed with, and finish before the end of the month. Now is the time to increase orchids, by division or otherwise. **SHADING**.—About the middle of the month place the shades upon the roof, to be ready for use, as the sun will soon be so powerful as to be dangerous. **WATERING AT THE ROOT** must now be regularly given, but care taken that it does not lodge upon the leaves or in the hollow of the young shoots. T. AFFLEBY.

PLANT STOVE.

ACHIMENES advancing in growth, give water to, but do not flood them in this early season; repot such as have filled their pots with roots; pot a batch to succeed the former ones. **AIR**, give now freely in mild weather; take care the apertures for the admission of air are not directly opposite the plants, it is best to come over the pipes or flues, to be heated before it reaches the plants. **BASKETS**. Place in these *Scythianthus*, *Achimenes*, some *Lycopodiums*, and other hanging-down plants; they ornament the stove greatly. There are some baskets made of coloured glass, that are very ornamental objects, filled with proper plants. **CUTTINGS** continue to put in; pot off such as have rooted. **EXORAS**, re-pot, stop, and tie out; place them in a frame heated with dung; here they grow rapidly and soon make fine plants. **INSECTS**, continue to watch for and destroy. **POTTING**, finish the spring, by the end of the month. **SYRINGE** freely morning and evening, and keep the paths flooded in sunshine. **WATER** will now be required in large quantities to fast-growing plants. Let the walks be frequently washed out, and every yellow leaf removed, every plant neatly tied, and decaying flowers removed as they occur. T. AFFLEBY.

FLORISTS' FLOWERS.

AURICULAS and **POLYANTHUSES** will now be showing their flower-stems. In this stage they require constant attention. Top-dressing, if not done, must be finished the first week; water regularly in pretty liberal quantities; if allowed to flag now the blooms will be small. Give plenty of air daily, and shade from bright sun towards the end of the month; cover up securely at night whenever there is the least appearance of frost; sow seed, and pot last year's small seedlings to encourage growth. **CALCEOLARIAS**, re-pot, prick out seedlings, give plenty of air to, and smoke frequently with tobacco. **CARNATIONS** and **PICOTEES** put into their blooming pots. Search the soil over minutely, to find wireworms, and destroy them previously to using. Place them when potted upon a bed of coal-ashes, with a convenience of hoops and mats to shelter them from severe weather. Should mildew appear, dust with sulphur; and destroy green fly with tobacco-water or Scotch snuff. **CINERARIAS** finish pottling, b.; smoke frequently to destroy every green fly as soon as it appears; water freely, and shade from bright sun as the flowers open. **CHRYSANTHEMUMS** pot off into small pots and repot, b., into a size larger. **DAHLIAS**, all intended to be potted should now be done; pot off cuttings as soon as rooted, and put in more cuttings if required. Divide the old roots, leaving a bud or two to each division, place each division in a pot and allow them to grow slowly till planting time; a cold frame well protected from frost will be shelter enough for them. **FUCHSIAS**, re-pot; cuttings may yet be put in. Begin to train early in order to form well-shaped plants. **HYACINTHS**, tie the flower-stems to sticks to prevent the winds from breaking them off; continue to shelter the bed by hoops and mats. **HOLLYROCKS**, plant out where they are to bloom; place a mulch of short litter round each plant. **PINKS**, top-dress, b., if not done last month. **RANUNCULUSES** may yet be planted, b.; shelter the bed from heavy rains, frost, hail, or snow.

TULIPS will now be growing fast, shelter the young plants from heavy rains, or other severe weather; if rain falls during the day and a sharp frost intervenes at night, and no protection is given, the young leaves will be much injured. VERBENAS, in pots for exhibition, re-pot, tie out, and nip off the tops of the shoots; shelter both these and those intended to plant out from frost; smoke frequently to keep down green fly, and syringe occasionally with sulphur-water to destroy or prevent the red spider; put in cuttings of scarce sorts; sow seed; look for slugs constantly in the frames under the pots or any other lurking place, and destroy them. Finish planting ROSES, and place those in pots in a warm house, to be coming on for the June or July exhibitions.

T. APPLEY.

FLOWER-GARDEN.

ANNUALS (Tender), such as the *Portulacae*, *Mesembryanthemums*, *Lobelias*, &c., sow, b.; (Hardy), sow on dry borders, b. and c. BIENNIALS, sow, c. CLIMBERS, half-hardy, as *Maurandya*, *Lophospermum*, &c., pot and train, b., to have strong for next May planting. CUTTINGS, push on the propagation of cuttings, and transplant them as fast as they root. DAHLIAS, sow, and force old roots for stock, b. DRESS every part within the boundary as early as you can. EDGINGS of all sorts finish off as early as possible. All EVERGREENS transplanted since last August may have liquid-manure this month, and throughout the season after this mild winter. FLOWERS, pick off plants you want cuttings from, b. Finish all the PLANTING and SPRING PRUNING of trees and shrubs, and all necessary alterations as soon as the weather will permit. GRASS and white and small yellow CLOVER SEED, sow with a liberal hand over patchy grass: keep the grass in clean, trim order, and roll it three times this month, and oftener if you can. GRAVEL, clean, roll, and relay. HAND-GLASSES, the best of all aids to rear half-hardy, and such other annuals as come up weakly at first, place them on a warm sheltered aspect. HOING: never hoe a border in March, for fear of killing something which you cannot yet see. HOTBEDS are only good helps to those who can well manage them for the flower-garden; keep them up to 70°, and steady. HYACINTHS and other BULBS; as soon as they appear, stir the beds and lighten the soil round the plants; and plant spring GLADIOLI at once. PERENNIALS, with the exception of long fleshy-rooted ones, ought to be removed—divided, if necessary—and receive some fresh soil, or be planted in new situations, at least every third season; see to this rule, and treat one-third of each family, every February or March, according to it. PROTECTION is necessary for almost all young things of a tender nature, this month. RAKES: lock them up, b.; if your man cannot dress a border without a rake, pity him. ROSES, finish pruning, b., except, perhaps, a few strong ones be left unpruned till April, to bloom later; but this plan is radically bad, and not necessary now with our perpetuals. SEEDS, do not sow a packet of rare seeds in one pot only, sow in two or three pots to provide against accident to one. SEEDLINGS in heat, transplant as soon as you can handle them. STAKES; see if you have a stock on hand for your dahlias, hollyhocks, and all other plants requiring them next summer, and see that all the old ties and rotten stakes are out of the rosary. SWEET BRIAR, sown in a single row, will grow and make a hedge in such poor soil as would kill other roses. TURF, lay.

D. BEATON.

FRUIT FORCING.

ARE, admit freely. APFIDES, destroy. CHERRIES ripening, require much air. CUCUMBERS require plenty of air-moisture, and heat of 70° to 80°, and cautious air giving. FIGS, 60° to 70°; water freely, and use air moisture; stop when half-a-dozen eyes long. LIQUID-MANURE, provide, and apply weak and clear. LEAVES of all fruits, keep clean by sponge or syringe. PINES, fruiters, give more water, and a very moist air; successions, re-arrange for the spring; pot where necessary, and renew all bottom-heats, 85° the maximum. PEACHES, disbud, thin in the wood, and stop where required. STRAWBERRIES, keep near the light, and give air; water liberally, especially after the flower-stems rise; use liquid manure. MELONS, plant successions; thin, stop, and set; temperature, 70° to 85°; bottom-heat, 80°. SULPHUR, apply once a month in all structures. TOBACCO, use frequently. VINES, early, finish thinning berry; continue stopping, and clearing away all waste shoots; keep up warmth at the root; succession crops, disbud, stop, &c., the former, 70° to 80°; the latter, 85° to 65°. WATER daily things that need; use plenty on floors, walks, &c.; sprinklings cannot be made too frequently.

R. EBBINGTON.

FRUIT-GARDEN.

APRICOTS, prune, plant, hunt the eggs of red-bar moth. APPLES, prune, plant, dress for blight, with spirits of turpentine; for moss and scale, with soft soap and brine. BLOSSOMS, retard or protect. CURRANTS, prune, plant, top-dress. FIGS, uncover, plant and prune at the c. GOOSEBERRIES, plant, prune, train. GRAFTING, proceed with shortly. HOING, ply the hoe where the spade may not come; propagate bush fruit, &c., by CUTTINGS. PLANTING of all kinds finish. PEACHES and NECTARINES, prune, dress, and cover. PLUMS, plant, prune, protect. RASPBERRIES, plant, prune, top-dress. ROOT-PRUNE where necessary, all gross trees. STRAWBERRIES, dress, and top-dress. STANDARD orchard-trees, prune, plant. STAKE all trees in danger. STOCKS, plant, and sow seeds. TRENCING, complete. TRELLISERS, finally dress, use protection. VINES, prune, plant, and propagate. WALNUTS, plant. In grafting, commence with kinds according to the earliness of the bud, which should be just beginning to swell.

R. EBBINGTON.

GREENHOUSE.

ARE, admit in fine weather, when the outside temperature is above 35°; a shut house is better than cold currents and night fires; in foggy weather, however, light a fire, to clear and dry the atmosphere. BULBS and TUBEROUS roots, introduce, and water more freely; start the various kinds of Achimenes, Gemma, and Glorinia, in hotbed; seeds of the latter, sown now, will give nice little flowering plants for the autumn and

winter, if you can give them heat. CALCULARIAS and CINERARIAS, water more freely; give manure water to those flowering and showing their flower-stalks; shade in sunny weather; shift for succession. CAMELLIAS and AZALEAS, water more plentifully when in bloom; keep those intended for late blooming as cool and shaded as possible, so that frost does not injure them. DIOSMA, EPACRIS, HEATHS, give abundance of air when growing and flowering; PRUNES freely when done flowering, and keep close until they begin to grow, when the roots had better be examined. HABROTHAMNUS ELEGANS is now a pretty object, grown in a pot, or trained against a pillar. HOTBEDS, prepare for sowing Primula seeds, and any other desirable greenhouse plants, raising cuttings, sowing seeds, or striking cuttings of the commoner sorts for stocks, on which to inarch or graft Correas, Oranges, Camellias, &c.; the grafting of such plants is easily effected in such a sweet moist hotbed, and does away with much of the trouble of inarching. Such a bed will, also, be necessary for starting Cockscombs and Balsams, &c. INSECTS, destroy. LEAVES and STEMS, clean; a little soap in the water is a great auxiliary for removing all kinds of filth; syringe with clean water afterwards. LILIES, JAPAN; after the stems appear, place in a light, airy situation. MIGNONETTE, and tender annuals, sow in slight hotbeds, in pots, turf, &c., to be afterwards hardened off. SOIL, prepare; turn; and expose for a general shifting about the end of the month; but do not knock about fresh soil intended for potting, so as to shake the fibre out of it. PRIMULA SINENSIS will be greatly benefited by manure-water. The double varieties are well worth a little extra attention, as the flowers stand a long time in a bouquet. TRAIN large plants of PELARGONIUMS, intended for early flowering; STOP those for late summer and autumn. Scarlet Geraniums, intended for specimens in pots, give good shifts to, and if they can get a little bottom-heat, they will come all the stronger and bloom the finer. Tie climbers to rafters, after duly pruning them, keeping in mind whether the flowers are produced on young or old wood; train daily those on trellises; and, as the season is now getting on, let neatness, order, and cleanliness, everywhere prevail. WATERING will now be more wanted, and a moist atmosphere in clear weather to counteract the drying effects of east winds.

R. FISH.

KITCHEN GARDEN.

This is a busy month—every day brings its work; a favourable opportunity should never be lost for doing any particular kind of work; take advantage of open mild weather for every kind of planting; in taking up transplanted plants from nursery beds of any kind, or at any time, always lift them up with some kind of tool or other, as a plant thus transplanted always suffers so much less than a plant drawn from the seed-bed. ANGELICA, sow, or plant, c., autumn-sown. ALEXANDERS, sow, m. or e. ASPARAGUS, sow or plant, c.; and dress off out-door beds; attend to that in forcing; water with liquid-manure once a week. ARTICHOKE and BALM, plant. BASIL, sow a little for early use. BEANS, plant; and earth-stir growing crops. BEST (Red), sow a little for early use. BORAGE, sow, and earth-stir autumn-sown, and thin out. BORECOLE, sow, m. BROCOLI, sow a little of the early kinds, and mark any favourite kinds for seed. BURNET, plant or sow. CABBAGES.—Any early kinds may be sown, or Red Dutch, should plants be wanted. CAPSICUMS, sow, to forward in hotbed, b. CARDOONS, sow, e., for first crop. CARRAWAY, sow. CARROTS, sow for early crops; attend to thinning-out those in growth, and earth-stirring; sowings of the Early Horn may still be made on gentle hotbeds. CAULIFLOWERS, plant out the winter-protected; attend to spring-sown, as to siring, pricking out and earth-stirring; also assist the early hand-glass crop with soakings of liquid-manure, &c.; and sow in succession, e. CELERIAC, sow. CELERY, sow main crop, m., and prick out early-sown on gentle hotbed; leave for seed. CHAMOMILE, plant. CHERVIL, sow; save seed from autumn-sown. CHIVES may be divided, and planted out. CLARY, sow, e. CRESS (American), sow. COMPOSTS, prepare. CORIANDER, sow. CORN SALAD, sow. CUCUMBERS, ridge out; pot off; or sow in succession; sow also toward the middle of the month, for planting out under the hand-glasses next month; attend to those in bearing; keep up a good moist heat. DILL, sow or plant. EARTH-STIRRING, attend to in all cases, and often. FENNEL, sow or plant. GARLIC, finish planting. HOING attend to in dry days. HOREHOUND, plant or sow. HORSE-RADISH, finish planting. HYSSOP, sow, or take up and divide old roots. JERUSALEM ARTICHOKE, finish planting. KIDNEY-BEANS, sow in succession; attend to those in bearing, assist them with liquid-manure. LEEKS, sow. LETTUCES, sow; prick out; and plant out. MARIGOLD, sow, SWEET or KNOTTED MARJORAM, sow a little for early use. MARJORAM (Common Garden), divide and plant out. MELONS, sow in succession, and ridge out; attend to earthing-up, training, &c., the early crops. MINT, plant. MUSHROOM-BEDS, make, and attend to; assist old beds with a little tepid manure water. MUSTARD and CRESS, sow, once or twice a week. NASTURTIUMS, sow, e. ONIONS, sow the main crop; plant for seed, b.; also finish planting the Underground or Potato Onion; also the Tree Onion; and look over those in the store. ORACH sow. PARSLEY, both kinds, sow. PARSNIPS, sow, b. PEAS, sow in succession; the beginning of this month, is a good season to sow any of the tall kinds; earth-stir, or earth-up, and attend to sticking, &c. PENNYROYAL, plant. POTATOES, finish planting, either in hotbed or open quarter. RADISHES, sow in succession; attend to thinning out young crops. RAMPION, sow. RAPE, sow common, and edible-rooted, e. REUBEN, sow or plant, b. ROCHAMBOLE and ROSEMARY, plant. RUE, plant. SAGE, plant. SHALLOTS, finish planting. SALSAFT and SCORONERA, sow a little for early use. SAVOYE, sow. SEAKALE, sow or plant out; attend to early covering-up, to exclude the light from the crowns, for successional and late crops. SKIRRETS, sow, e. SUCCORY, sow. SORREL, plant or sow. SPINACH, sow in succession. TANSY and TARRAGON, plant. THYME, sow or plant. TOMATOS, sow in hotbed, e. TURNIPS, make a small sowing two or three times during the month.

T. WEAVER.

LONDON: Printed by HARRY WOOLDRIDGE, Winchester High-street, in the Parish of Saint Mary Kalender; and Published by WILLIAM BOMERVILLE ONE, at the Office, No. 2, Amen Corner, in the Parish of Christ Church, City of London.—February 26th, 1852.

WEEKLY CALENDAR.

M D	W D	MARCH 4—16, 1852.	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
4	Th	Land Tortoise revives.	30.671—29.944	51—32	W.	—	40 a. 6	44 a. 5	6 5	13	11 52	64
5	F	Wryneck seen.	29.770—29.613	47—29	S.W.	10	38	45	6 38	14	11 39	65
6	S		29.857—29.727	47—34	N.W.	—	36	47	rises.	15	11 24	66
7	SUN	2 SUNDAY IN LENT. Perpetua.	29.955—29.948	44—30	N.	—	33	49	7 a. 42	16	11 10	67
8	M		30.028—29.995	45—24	N.E.	—	31	51	9 7	17	10 54	68
9	Tu		29.965—29.662	46—36	S.	06	29	52	10 31	18	10 39	69
10	W		29.783—29.550	48—31	N.W.	05	27	54	11 53	19	10 23	70

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 49.3° and 32.5° respectively. The greatest heat, 65°, occurred on the 9th in 1826; and the lowest cold, 7° on the 10th in 1847. During the period 114 days were fine, and on 61 rain fell.

BRITISH WILD FLOWERS.

CROWFOOTS—*RANUNCULACEÆ*.*RANUNCULUS*.

(Continued from page 313.)

SECTION WITH LEAVES CUT OR LOBED.

RANUNCULUS BULBOSUS: Bulbous Crowfoot; Buttercup; Goldenp; Butter-flower; Kingcup.

Description.—It is a perennial. *Root* a solid, roundish, white bulb, fibrous underneath. *Stem*, one or more, erect, a foot high, round, hairy, leafy, hollow; alternately branched in the upper part; simple, and without offsets or runners below. *Lower leaves* on broad, channelled, hairy stalks, compound in three-leaflets, as well as deeply three-cleft and cut, varying much in hairiness. *Upper leaves* alternate, stalkless, more simple, with strap-shaped segments. *Flowers* terminal, solitary, on simple, furrowed, hairy, upright stalks. *Calyx-leaves* egg-shaped, concave, hairy, thin at the base, semi-transparent, turned back close to the stalk soon after they expand. *Petals* roundish, with a terminal notch, concave, varnished golden yellow. *Nectary* covered by a heart-shaped scale. *Seeds* flattened, smooth at the sides.

Places where found.—Very common in meadows and pastures. Mr. Perry found a double variety near Leamington and Warwick. It is figured in some old herbals, and occasionally cultivated as the *Double-yellow Bachelor's Buttons*.

Time of flowering.—May, June.

History.—Next to the dandelion, this is the earliest yellow flower that makes our meadows brilliant. It is Shakspeare's "Cuckoo-buds of yellow hue." Like most of the Crowfoots, it blisters and inflames the skin to which it is applied after being bruised. The root especially is said to raise blisters with less pain and more safety than Spanish flies; it has been thus employed as an application to gouty joints. The juice applied to the nostrils causes sneezing. The bulbs, if kept for a little time, lose their stimulating quality, and are eatable when boiled. Hogs root them up and eat them. The leaves, mixed with other herbage, are eaten by cattle of all kinds, and the mixture probably acts as a grateful and healthy stimulant. A slice of the root is sometimes applied with benefit to the gum of an aching tooth. After flowering, the old bulb decays, and a new one is formed above it.

RANUNCULUS HIRSUTUS: Pale Hairy Crowfoot.

Description.—This is an annual. *Root* of many long, thick, white fibres. *Stem* one-and-a-half foot high, branched, and spreading. *Herb* very variable in luxuriance, paler green than most of this genus, and clothed with fine, stiff, spreading hairs. *Lower leaves* on long hollow stalks, three-leafleted; lobed and cut; middle lobe stalked. *Upper leaves* stalkless, with 3, or more, narrower segments; surface of leaves uneven, with little points whence the hairs issue. *Flower-stalks* hairy, furrowed. *Calyx* pointed, finally bent-back close to the stalk, and clothed with hairs with glands at their base. *Petals* pale golden yellow. *Nectary* covered with a scale. *Seeds* flattened, bordered, rough on both sides, especially towards the edge, with an irregular double or triple row of small sharp prominences.

Places where found.—Common in moist meadows and clayey soils, where water has remained during the winter. Also on banks by the sea-side.

Time of flowering.—June to October.

History.—The *Ranunculus parvulus* of some botanists is only a starved specimen of this species. Some botanists call it *R. philonotis*. It is liable to be mistaken for *R. bulbosus*, from which it differs in having stiffer, longer hairs,

more perfectly three-lobed leaves, the middle and outer lobe rounder, less deeply divided on the edges, and from the inner edge of each of the outside lobes a bit seems cut away; calyx before opening seems pinched to a point; the flowers and seeds are smaller, it flowers later, and has no bulbous root. Ray says it is not acrid. Jacquin called it *R. sardous*, because he thought it the plant which caused the sardonic laugh, or grin.

RANUNCULUS REPENS: Creeping Crowfoot; Creeping Buttercup.



Description.—This is a perennial. *Root* slightly tuberous, with many white stout fibres, sending forth from its crown long prostrate runners, which take root at every joint. *Stems* one or two feet high, erect or ascending, round, hairy, leafy, branching. *Leaves* dark green, hairy, twice three-leafleted; the upper ones with wedge-shaped, cut leaflets; uppermost of all in 3 deep, spear-head-shaped, acute, entire lobes. *Upper leaves* quite entire. *Root-leaves* often marked with a black spot. *Flower-stalks* five-furrowed. *Flowers* usually two together, bright yellow, like those of *R. bulbosus*, *hirsutus*, and others, but the hairy *calyx* is spreading, not bent back, deciduous, falling with the petals. *Petals* notched. *Nectary* covered with a notched scale. *Seeds* not generally perfected, flat, smooth, with a small point.

Places where found.—Very common in moist meadows, pastures, and shady neglected places.

Time of flowering.—June to August.

History.—From its readily adapting itself to any soil, and from its creeping stems, it is one of the most troublesome of pasture weeds. Its form varies much, according to the soil on which it is growing. In wet places it will reach to a length of four feet, and the stem be nearly an inch in diameter; whilst in gravelly, dry soils it rests on the ground entirely, and is not stouter than a straw. It is acrid, and capable of blistering. Its flowers are rarely found double.

THE FORSYTH MSS., from which we now commence publishing a selection, are the property of Mr. Robert Hogg, whose excellent work, entitled *British Pomology*, we recently noticed. In a letter with which he has also favoured us, he thus details their history:—

"Some years ago, when I was a partner with Mr. Gray, in the Brompton Park Nursery, I one day discovered in an upper room of the warehouse, among a quantity of lumber, a box, of which no notice appeared for many years to have been taken, but had been left as a sporting preserve to the mice, and as a prey to insects. On examination, I found this box contained, besides numerous papers, specimens of woods, in transverse and longitudinal sections, among which were pieces of the Cork oak, but all were completely riddled, and devoured by insects. The papers were in a better condition, and had suffered little from their long confinement and neglect. These proved to be the correspondence of William Forsyth, and knowing who the correspondents of such a man were likely to be, I lost no time in having the contents of the box turned out and thoroughly cleaned and arranged. On mentioning the circumstance to Mr. Gray, I learned from him that he had been executor to Mr. Forsyth, and that these papers came into his possession at Mr. Forsyth's death. Mr. Gray taking no heed of them, further than treating them as waste paper, I subsequently asked him if he would allow me to take them into my possession, as I did not like to see them so treated, particularly as I thought there might be much of interest contained in them. To this he assented, and since that time I have preserved them from further injury and diminution."

These letters, some hundreds in number, are from many personages of Mr. Forsyth's time, the most distinguished for their position, either by rank, or by their scientific attainments. Such letters, without containing any important discoveries, are highly interesting, by throwing light upon many characters and transactions now matters of history.

The letters have been arranged alphabetically, according to the names of the writers, and we shall not depart from this arrangement, although by so doing some of the most interesting will be deferred towards the conclusion of our selection.

Following this arrangement, we come very early in the series to the letters of Mr. Henry Addington, better known by his subsequently-acquired title of Viscount Sidmouth, and of John Hiley Addington, his brother, and subordinate in office. Those letters are creditable to them in no small degree, for they are evidence that even the affairs of the nation did not withdraw from their attention the welfare of their private servants. Mr. Addington became Prime Minister in 1801, and his brother acted under him in a subordinate office. Whilst thus employed, requiring a superior gardener for his establishment at Langford Court, Somersetshire, he applied to Mr. Forsyth to obtain an instructive employment for the gardener about leaving that place, and the two following letters tell the result.

MR. J. H. ADDINGTON TO MR. FORSYTH.

Downing-street, Nov. 15th, 1802.

Sir,—I am unable adequately to express my surprise at finding, that after having kindly promised me to find for my gardener a place under you, in which he would have opportunity of improving himself, which was my whole object in recommending him to you, you have put him to the expense of a journey of 130 miles, and only to make a day-labourer of him, at common work, for 10s. 6d. per week. Besides, had it not been for the encouragement you had given me, I would long since have been provided with a situation

suitable to his merits. I shall never cease to consider such conduct as very extraordinary, especially after the repeated expressions of obligation to me for attention to your concerns.

I am, Sir, your humble servant,
J. H. ADDINGTON.

I shall get him a place elsewhere.

Mr. Forsyth's reply was this—

Sir,—I am extremely concerned that any thing should have occurred respecting your late gardener to give you any cause of offence. I never understood that he wished to be instructed in the management of the hothouse till Friday last, otherwise I would certainly have told you that we have no other houses at Kensington than a greenhouse, and a few houses for forcing strawberries. I, however, told him, that as I had no hothouses under my management, that I would most readily recommend him to a place where he would have full practice. I by no means wished to put him on the footing of a labourer, on the contrary, although I did not want a man at this time, I had ordered that he should be put in the best place in the garden; and as to the wages, it is all that I can afford to give at this time of the year, and 13s. in summer, and the best gardener in the kingdom who comes to me when out of place receives no more. When he delivered your letter, he intimated that he wished to go to a place; had he mentioned that in the morning, I could have recommended him to one; and I can assure you, Sir, that I entertain the utmost gratitude for past obligations, and have that high respect for you, that I would with the greatest pleasure do anything in my power to serve you, or any one you thought proper to recommend; but as there appears to be some unaccountable misunderstanding in this affair, I beg you will permit me to wait upon you to-morrow morning, and I am fully convinced a few moments only will be sufficient to set everything in a clear light.

GOSSIP.

A CORRESPONDENT (*Sigma*) has sent us the following remarks, suggested by the correspondence in the January number of THE COTTAGE GARDENER:—

1. *Greenhouse with boards.*—The best covering for such a structure I have found to be the "patent felt;" its non-conducting powers are admirably adapted for keeping the house dry and warm, and it has the advantage of being able to be used with old boards, or with thin ones. I have a house used now for bees, the boards of which are only half-inch stuff, and came from an old shed that was pulled down. The cost is five farthings per foot.

2. *Protecting newly-sown seed from birds.*—I have found, this year, by far the most effectual mode, is to strain a few strands of old worsted tightly between little sticks about an inch from the soil.

3. *Bridal bouquets.*—Orange blossom is considered an emblem of matrimony, as the orange-tree bears fruit and flowers at the same time.

4. *Bottling fruit.*—I extract a passage from "Mulder's Chemistry of Animal and Vegetable Physiology," page 56. "If but a small disturbance of chemical equilibrium has occurred, that is to be regarded as a focus or centre from which the action extends. In every kind of fermentation, or putrefaction, this disturbance arises from oxygen. This was ascertained by Gay Lussac. He kept the juice of grapes for some days over mercury; it did not ferment, but the introduction of one bubble of oxygen was enough to originate fermentation, which then proceeded spontaneously. . . . Upon this principle the preservation of meat, vegetables, &c., in vessels exhausted of air (and so deprived of oxygen), generally by ebullition, is founded; so is the method introduced by Appert, of boiling vegetable saps in bottles well corked, for the purpose of taking away the oxygen in the small quantity of the air left behind, and of uniting it with part of the substances; and also for the purpose of disturbing by the ebullition part of the chemical forces, especially those in the dissolved albumen, which becomes coagulated when boiled."

I have thought this extract might be interesting, as giving the rationale of the affair. What the exact mode of Appert's

plan is I do not know, but I believe the secret is to stand the bottles, with the fruit, full of water, for half-an-hour, in water of about the heat of 180° or 190°, corked; and immediately on taking them from the hot water, sealing them, so as to make them air-tight.

The exhibitions of the *Gloucester and Cheltenham Horticultural Society* will take place at Cheltenham on the 13th of May, 15th of June, and 26th of August.

"THE COTTAGE GARDENER is the best medium for advertising, after all. I have been hunting for the beautiful *Eriogonum speciosum* these ten years back, but in vain. I sent to all my foreign friends and correspondents, from Copenhagen to Geneva, for it, and for *Pelargonium crassicaule*, but could learn no tidings of them. All parts of the three kingdoms have been tried by nurserymen's travellers for me, but, with the single instance I lately mentioned, the whole turned up a blank. But no sooner had I put my troubles on these pages, than a satisfactory answer has been returned. Mr. Sim, nurseryman, Fooks Cray, in Kent, has a large bed of it, 'Where it is growing like couch grass, and is as difficult to destroy as that provoking weed.'

"It first found its way to that nursery from Mr. Murray, curator of the Botanic Garden, Glasgow, and therefore is sure to be the true sort. Besides, here are its true characters, from Mr. Sim, jun., who obligingly sent me the notice: 'It has creeping roots, grows erect, and has white flowers, which are produced all the summer, and all the autumn too, I have no doubt, provided it is taken up every April, and divided like the Carpathian blue and white bells. Were it not that I fear the cottage gardeners will pull this bed too much to pieces, I would run down to Fooks Cray next summer, and renew my acquaintance with my long-lost friend. There is another bedding plant in the nursery that I have not seen these twenty years back; it is a small Italian bulb, called *Trichonema columnæ*, and flowers in beds or patches, like the crocus, in April or May—a fit companion to the little pretty squills, which are also much cared for in this nursery for their early spring flowering.'—D. BEATON.

VINES IN-DOORS.

Most people's vines will now be either in course of forcing, or on the move, and we must offer a little advice. In the first place, let every one remember the vast importance of using sulphur frequently in all structures where vines are grown; this was considered necessary before the pernicious mildew was known, but now doubly so. There has been much debating amongst parties, as to whether the sulphur is really efficient; whether, in those cases where the pest was subdued, heat was not the chief agent. So much multiplied, however, has been the evidence in favour of the sulphur, and so weighty, in many cases, as to the character of the parties from whence it proceeded, that it is now idle to discuss the matter further.

That starvation, or in other words, a low vine temperature, is not congenial to the vine, we are prepared to admit—no fruit more enjoys a warm atmosphere than the vine. Whilst, however, avoiding one error, let us beware of its opposite mistake—so much said about high temperatures, may, we fear, cause some of the unknowing to fall into the serious error of scorching. And now, whilst on the subject of temperature, let us at once advert to the kind of atmospheric management necessary during these stages of vine culture, each of which possesses some features of a peculiar character. They may be divided as follows:—

1.—The breaking period.

2.—The swelling period of the berry.

3.—The ripening period.

4.—The keeping period.

Breaking period.—Now, those who live in dread of the mildew, who have before suffered beneath its inroads, may timidly believing that heat alone will stave it off, use much higher temperatures during the breaking period than they were wont to do. This will be bad policy; let them not be surprised if they find only a portion of the necessary buds break, and the trees in consequence become naked-stemmed. In all cases of artificial excitement in vines, what is termed slow breaking is indispensable. From the moment of commencing to excite them, all fire-heat should be guarded with a jealous eye. In fact, the slower the breaking, the more regular will the buds burst. There can, in fact, be little real advances made during this period; through the medium of heat; the true forcing must take place in another stage, and accompanied by other conditions, of which more presently. During this period, therefore, let the thermometer range from 45° to 55°, making the latter the maximum point, until the buds are an inch long, when 55° to 60° may soon be permitted. A regular supply of air moisture is particularly essential during this period—we care little for what is termed steaming, which is, we suppose, done in imitation of the out-door fogs, and is but too apt to be as short-continuing. A regular and moderated supply of air moisture cannot be sustained in an equable and certain degree by these means alone, and neither is the syringe alone competent to this end. If fermenting material—the best source of all—cannot be introduced, all floors, and, indeed, every available surface, should be kept moistened about three times a day. We cry mercy of the ladies for thus endangering their dresses in walking through their green-houses, but our duty is imperative, and this way of producing air moisture but points to the need for better machinery in many houses. However, everybody can furnish evaporating pans to their flues or pipes, and none should be without. We have a house at work now, in which incomplete provision had been made originally for air moisture, and having some two or three dozen pot-stands or pans at liberty, we have placed them all over the flue, and keep them filled with water, and the difference in the softness of the air by these simple means is astonishing.

2. **The swelling of the berry.**—We, of course, here, as to the present period, address these remarks to those who are vine forcers in the true sense; those who commence in one house only pot-plants and vines, must, of necessity, be behind this division of the subject at the present moment. In the first place, *temperature*. We know that all advances in the thermometer must be gradual, inasmuch as the increase of light is gradual, and the increase in the action of the sap gradual. From a minimum of say 55°, then, the forcer must advance to 60°, and a maximum of 65° to 75°, it may be 80°. These things, however, are not determinable so much by any given period as by the amount of solar light.

It is evident, therefore, that all advances during the early spring forcing must, of necessity, be occasionally over-ruled by fluctuations of frequent occurrence. "Cut and dry" rules must sometimes be eschewed, and the minimum point being kept in view, beyond which it is not safe to venture, the regulation of the maximum pitch becomes a mere common sense affair. And why? We know very well that a vine may endure—yea, enjoy—a temperature of nearly 100° within the tropics, yet would "scorch" with the same in Britain. But what any plant will endure in the open air, where cooling currents are free to roam, and in houses where they meet with impediments here and there on every fitful occasion, are two very different matters.

During this period a very frequent, yet guarded, course of *ventilation* must be practised,—so frequent,

indeed, that were it not for the escape of too much atmospheric moisture, and perhaps too sudden depression of heat, we should say—ventilate constantly, day and night. And here we venture an opinion, that forcing-houses will never be what they ought until complete provision is made for this practice. The prime consideration in such a case is to provide for the rapid dispersion of air moisture, and certainly it would seem at first sight a very easy affair. However, in order to avoid the use of the syringe from the moment the vines commence blossoming, let all floors and other surfaces be sprinkled three times a day, viz., at 6 A.M., at mid-day, and at 5 P.M. The mid-day sprinkling we hold to be of as much importance as either of the others, especially if the day be bright and hot, for an inconvenient amount of heat is very apt to be suddenly engendered about ten or eleven o'clock in such weather, especially if fires have been used. The application of moisture under these circumstances both carries away surplus heat, and moderates the dryness of the atmosphere.

And now about ventilation. Every one must have heard of "scalding in the berry," and much learned investigation has taken place concerning it; the question, all the while, lying in a nutshell. Ventilation, then, is the antidote to scalding, or, rather, the preventive. It ought to be more generally known, that moist air scalds much more rapidly than dry air, and at a much lower temperature, at least so we have always found it. Now, in order for any one to rightly appreciate the rapid accumulation of the solar and other heat conjointly, at the back of a lean-to house, one hour's thinning of grapes at the back part, before air is given, some bright and fair March or April morning, will better convince than a quire of well-inked paper. Little do novices imagine, when standing, it may be, in a front path, what is going on overhead; the thermometer, however, will be the best test, and let those desirous of being careful on this point just try the difference between one on the ordinary floor line and one within a foot of the roof, towards the back of the house; and if there has been a fire through the night, and the pipes or flues are still warm, the experimenter will be astonished at the amazing discrepancy; the sun shining, and the experimenting period say 8 to 10 A.M. Arguments such as these prompt men of experience to recommend a very early ventilation in vineries. When old practicals talk of "giving air," that is, suffering the accumulated heated air to escape at the back or apex, by letting down the back lights, or other available means, as early as seven A.M., some people wonder, and cannot divest themselves of the idea that it is an unnecessary work. This, then, leads to the fact that we would fain impress on the minds of learners:—that those who will avoid that mysterious thing called "scalding," with other *aliases*, must give air,—back air—at least in all lean-to vineries, if only an inch, by eight in winter, seven in spring, and six in summer, A.M.

Equally with early airing, we advise early closing; and if it be really essential that vineries *must* be closed for a few hours during the twenty-four, we say, let it be from the moment it becomes safe to close entirely, until dark; this will be about two to five P.M., in very early forcing, and from four to seven or eight at more advanced periods, other cases being of course intermediate. This, which old gardeners in our earlier days termed "putting to bed warm," is the one grand maxim in most forcing affairs, as far as the regulation of heat is concerned.

It will be seen that at present we have said nothing about disbudding, stopping, thinning the berry, modes of training, &c. To embrace all such would occupy a whole week's COTTAGE GARDENER; we prefer at present to discuss what may be termed graver matters, and which are yet but imperfectly understood, as witness the

gardening periodicals generally; seldom do we take up one, but there is some tale of woe connected with vine culture.

ROBERT ERRINGTON.

(To be continued.)

PACKING FRUIT-TREES, &c., FOR OUR COLONIES.

It is not often that I can find sufficient room to quote so largely from the letters of correspondents as I did last week under the above heading; but that letter was so concise, and so much to the point, that one might take it, at a glance, to represent the wants and perplexities of nine-tenths of such of our readers as are interested in this important question. It also gave a general idea, but a very erroneous one, of the usual way of packing trees for long sea voyages, and, therefore, I thought the best course would be to give publicity to the whole, and then to state my own views and experience on the different heads.

The practice of puddling the roots of young trees when they are removed in the spring in the nurseries, is as old as the hills, but it is not much approved of by the best planters in these days; and if we consider, we shall find that the practice is just as likely to be attended with injurious consequences as not.

Puddling is done on this wise: a hollow is made in the ground, and filled with water; the edges of this hollow are then cut down with the spade, and the soil is mixed with the water until it is as thick as cream. A young tree, if well rooted, must have a large portion of the roots small and fibrous, and when the puddle hangs to them they lose their natural position, and are drawn together in close bundles; and a tree planted with the fibrous roots in this condition must, in the long run, suffer more or less from this cramping—hence the reason for the discontinuance of the practice. Now the supposed benefit of puddling the roots of trees for long voyages is, that the mud or puddle will secure the roots from the air; but as soon as it is dry it will crack in all directions on the least disturbance of the box, or the workings of the vessel; so that, in point of fact, there is very little advantage gained by this process.

Packing in very dry sand, or any non-conducting medium, is also intended to secure the roots from the air; and for quick voyages, as from England to New York, that is all that is required; but then, why not use dry sawdust instead of sand, as being less heavy, and not so liable to shift about on a rough sea?

I have already stated the objections to packing in wet moss, without insuring its moisture throughout the whole voyage, which cannot possibly be done without some such scheme as that which I recommend—enveloping each ball of moss in an air-tight covering. I would not advise more than one tree being put in a ball, on account of the difficulty of securing the bandage round the stem. If you have two stems, or three or more stems tied together, they cannot be brought together so closely, but vapour from the moss must escape between them; and if you were to plaster or puddle some composition in between the stems, so as to make the whole air proof, the chances are that cracks would soon be made as with the common puddle. On the whole, therefore, I think it more safe to put up every tree or plant in a separate ball, and afterwards to pack them in the box as closely as possible. The South American moss, or *pastil*, *Tillandsia usneoides*, or our own moss in a very dry state, would be as good, if not better, than dry sawdust for keeping the body of the tree from the air; but it is more troublesome to procure than fine shavings from the carpenter's bench, therefore I prefer the shavings, and I shall tell presently how I became acquainted with this kind of packing. Mean-

time, I would most strongly advise parties not to think of sending out trees in the spring. My friends in Inverness would not thank me to send them down the best fruit-tree in London late in the spring, because it would suffer so much from drying, and from the check, just at the moment the tree was beginning to grow.

From September to Christmas is the right time to take up and pack trees for Australia, New Zealand, Port Natal, the north of India and China, and the earlier the better. Another great point in the management of this business, is to have all those trees, &c., intended for the journey, pruned very close about the middle of September, or before that month is out, and not to lift them for a few weeks after pruning; and the reason for this is, that during that time the roots will gather a large store of sap, and the tree being pruned, this large store must be held in a small compass, so that the roots, stem, and branches are ready to burst with it in a few weeks; and if it were earlier in the season, they would undoubtedly burst into new wood and leaves as they do in the spring, all through the force of accumulated sap; and we need no prophet to foretell us that a full-sapped tree will be more able to stand a long voyage than one that is half spunged of its sap by careless management, or rather let us say, an oversight—such as “forgetting all about it” until three days before the vessel is ready to start, then flying away to the first nursery, and picking up something, tearing it out of the ground almost by main force, cutting off all the branches, and the last joint of the little finger to boot, then off again for the doctor to save your life, and before he comes you forget all about Beaton and the wet moss, balls and all, and some one else must finish for you, “puddle the roots,” and get the rest of the packing done just “as it used to be;” and when the box gets to port you will hear by the next post that it was a post too late; but you cannot give it a thought, your finger is so bad. Yes, but not half so bad as sending off trees to New Zealand in the spring; besides, before next September, the New Line of Mail Steamers will have found out the shortest cut to Sydney, and they will carry all sorts of plants and seeds both ways much better, and in half the usual time now occupied in the journey; and as cargoes are charged more by the bulk than by weight, the best packer will pay the least for his consignment.

To bring this mode of packing home to the general reader, I must mention a second application of it by a particular friend of mine, a Suffolk gardener, who was aware of all the details of my experiment with the wet balls of moss. He is the party who first found out the value of the carpenter's shavings for packing with. Like many more of our readers, he had neither pit nor greenhouse to keep his Geraniums, nor wax cloth from Calcutta to wrap round the moss and roots, but still he kept to the principle of the wet moss system, and by it he saved a good number of common plants; I cannot say how many, but he did not lose a single plant that winter. As soon as the borders were cleared in October, he took such as he wished to save, and put them in the wet balls of moss, exactly as I stated last week, and some smaller ones, he put as many as six or eight in one ball; he did not squeeze any of the water from the moss, but left the balls to drain for several days, and then he put them up in several folds of an old newspaper, and tied the paper as tight as he could round the stems of the plant, a little above the moss, with the intention of keeping them in his cottage as I had done, and also to see whether or not the damp from the moss would come out through the paper in the course of a week or two. I cannot say just now whether the damp affected the paper to the outside or not; if it did, it is very likely he added some more folds of it; at any rate, he saved his geraniums. He moved them from place to place, in order to give them

the benefit of a fine day outside, and to save them from the frost at night. One very hard frosty night, he thought his bed-room would be the safest place for them; and, to be more out of the way in the morning, he put them one by one within the valance of the bed, and, in doing so, he met with a sad accident, for which he had to listen patiently to a good *Caudle* lecture on this new process of packing plants for long voyages; but the upshot of the thing turned up a *trump* at last. He thought he must be more tidy for the future, and so he procured two or three shallow boxes to put them into, and the first packing stuff which came to hand were the shavings from his friend the carpenter; these he arranged, according to his own version of the story, “exactly as they pack the hampers with plants from London.” A rather indefinite mode of explanation for THE COTTAGE GARDENER, it is true, as *they* of London pack in all sorts of ways, but the meaning is this:—A quantity of the shavings are first packed close in the bottom of the box, filling it up so high, that when the enveloped bales are placed on it, the plants standing in an upright position, the tops of them are well up above the rim of the box; then, beginning at one end, you place one of the balls in the corner, after that a few shavings, to keep the next ball from touching the first one, then a second ball, and a second lot of shavings, and so on alternately until the box is quite full, the tops of the balls being all on a level, and a trifle below the rim of the box, which brings the whole very near the way they pack pots with plants in flat hampers in the nurseries; so that, instead of carrying about a lot of separate parcels or plants for airing, &c., a whole boxful of them is now ready at your hand, and so light, too, that a child could place one of them outside the window, full in the sun. My friend is not endowed with a good share of patience when he has a new experiment on the wing, and before the turn of the new year he must needs poke his fingers into these boxes, take out a ball here and there, and examine it. I am not sure whether he did not weigh some of them in the scales, to see if the moss parted with any of the moisture; the truth is, we shall never hear of the whole process; the substance of that lecture is ever present to his mind, and he now turns the conversation whenever the experiment is alluded to. One thing he owns, however, he did give the balls one watering in February from the spout of an old tea-pot, pouring a little at a time on the stem or stems of the plants; but whether that did more harm than good we shall probably never hear; it must be sufficient for us, who have “neither pit nor greenhouse,” to know, that every plant under the experiment, lived out the winter, that the whole were unfolded, at the end of March, as carefully as we should a mummy; the condition of the roots at this stage we have not learnt, but the plants were put in by the heels close by a south wall, and were protected from the frost to the middle of May, when they were removed to the flower-borders; this last part of the plan I recommended at the taking-up time in October, but I fear not very clearly, for some one has written to ask if I meant dried geraniums to be planted out in the flower-garden at the end of March.

Now, if I had a lot of common plants that I did not care much about, busy as I am, I would try this experiment over one whole summer, for the curiosity of the thing. I would not adopt the paper covering, like my friend the Suffolk man, but take some perfectly waterproof and air-proof covering, — a bladder would not be a bad thing, or a thin sheet of Gutta Percha, and they now make it as thin almost as the paper of this page, but a piece of very thin oil-cloth or waxed cloth would do. I would ball up the roots in wet moss, so wet, indeed, that it could not hold another drop, and after fastening the edges of the

covering round the stem, I would smear the thread and round the edges of the covering with some adhesive paint, that nasty stuff they sell for glueing on gutta percha soles would probably be the best, and least likely to harm the stem of the plant, as you could not well put it on without touching the stem all round. How many of our readers can I enlist on my side to try this plan, both for the good of our neighbours who are looking out for the safest way of sending out plants to Australia and other parts, and to see if it is all true what the philosophers say about the roots sucking up so much water, which the leaves are said to pass off in an invisible perspiration into the atmosphere?

The oleander would be quite at home with its roots stuffed up in a bladder, and hung up against a front window, as long as the moss kept moist, but how long or short that time would be remains to be proved; indeed many things, and useful things too, might thus be proved. Take ten plants, all of one sort, and as nearly alike in strength and health as possible, and put ten different kinds of stimulants in the water to wet the moss with, then see which will hold out the longest of all the stimulants, and what effect each or all had on the plants. Try "clarified" liquid manure against that which is as brown as foxy guano water, in such and such proportions against so and so, and all in that style of scientific experiment, and let us have something new and stimulating ourselves to write about out of all this. Might we not, also, prove how far we can keep plants in good health in the absence of any access of fresh air to the roots in these sealed bags? Surely we can contrive to have the bags or envelopes for the moss and roots more air-tight than the patent canisters which spoiled the German sausages and other trash intended for long voyages like our packed plants. I have long had my doubts about the philosophy of ventilation for the use of the roots, and here is a simple way of proving how the wind blows in that direction; but doubts and assertions are at a discount in these days, so we must have the evidence of our senses before we can nail down an argument or an opinion.

D. BEATON.

PLANTING OUT CAMELLIAS.

A CORRESPONDENT (C. A.), who states that his plants are getting too large for comfortable moving about, wishes for information as to planting them in his conservatory, and we give the matter this prominence here, hoping that the questions he and others have proposed will be met by attending to the following points.

1st. *Planted against Walls.*—The camellia, though a comparatively hardy evergreen, can only be seen in its greatest beauty in this country when receiving greenhouse or conservatory treatment; not but that it will stand out of doors in Devonshire, and also, with but slight protection, in the climate of London; yet, unless in very favourable seasons, the beauty is confined to the green foliage, as the flowers are easily marred by the slightest frost, and even by slight showers. True, when placed against a wall, with a broad coping of wood, or otherwise, these evils might be avoided, especially by using a protecting medium, and this might answer well where the cutting of half-expanded blooms in April and May are the object; but the beauty of the plant, to look at, is always injured when we have to grope our way to find it among frosty or wet protecting mediums. Placed against walls, covered with glass in winter and spring, with space enough for comfortably walking between the glass and the walls, the matter becomes altogether different, as, then, such *conservative* walls become, in every sense, conservatories in winter and spring, and nice covered walls in summer when the glass is removed. These are the sort of places in which

camellias would be quite at home. Some time ago a gentleman was advised by a nurseryman to plant the north side of a kitchen-garden wall with large camellias; the site was considerably north of London, and visions of unique and striking beauty were held out to him as the sure result, and that without the necessity of any protecting medium whatever. The gardener was *pook-pooked* because he had *misgivings* on the subject, and honestly, and at length successfully, stated his objections to the trial being made, unless some protecting medium was guaranteed.

For those who wish to try a few plants, the north aspect is far from the worst. The blooms would come so late that they would be more likely to escape the frosts, and would also succeed those grown in green-houses. On frosty mornings, the buds would be gradually thawed, and thus escape the quick transitions which they would experience on a south wall—the worst of all places for camellias, when not suitably protected by glass or otherwise. In planting against a north wall, the plants should be of a good size, the soil poor, and the position thoroughly drained, that short stubby wood may be made, and the buds set early in autumn. The only objection to the north side of a wall, is the deficiency of sunlight towards autumn for forming the buds, and, therefore, an aspect verging north-east, and, better still, north-west, would be preferable to due north. Those who wish to try, will find one of the very best, the *Double white*; it is as hardy as any, and to it may be added as equally hardy, the *Single red*—beautiful when half open—*variegata*, *incarnata*, *double red*, and *pomponne*.

2ndly. *Advantages and disadvantages of planting out Camellias in Conservatories.*—In extensive places, where the conservatories are in several divisions, there is the advantage of combining economy with a more natural-looking mode of growth. Plants in pots always convey the idea of the *stilted* and the *formal*, and the labour and time they require vastly transcend that requisite for those planted out. There is even a pleasing change in moving from a greenhouse into a conservatory. Anything like a stereotyped sameness is removed by the variety presented by the various houses, and a house of camellias, under such circumstances, will be less interesting in summer with their glossy foliage only, than it is in spring with their splendid blossoms. On the other hand, where there is only one house, the planting out of large camellias in prominent positions neutralises the most of these advantages, by the sameness of character communicated to the house at all seasons. This very sameness weakens the interest. The attempt to create diversity, by placing in every available corner a plant in a pot, breaks in upon the unity of expression. These matters have previously been discussed. The rules to be derived from them are—plant all, or plant none, so far as one house is concerned, or make a compromise of the matter, by planting in peculiar positions, leaving the rest to be changed at will, or, merely *seem* to plant, by *plunging* the pots. Let us glance

3rdly. *At the peculiar positions in which planting may be resorted to in a conservatory, while the mass of the plants are standing in pots.*—First, here is a span-roofed or curvilinear house, with a bed in the middle, and paths and border, or shelves, all round. The centre of this bed, in such circumstances, would be the best position for planting out large plants; even if pots are used on both sides of them, the large plants in the centre, being planted, would scarcely break in upon the unity of expression, because the base of them would scarcely be seen. But, secondly, in a hipped roof, and an opaque back wall, or a house with a sloping roof, and high upright front glass, with a bed or stage in the centre, walk all round, and shelf at the front glass, the border at the back of the house would be the most suitable place for

planting out Camellias. Against such back walls they will grow and flower in a manner rarely equalled when grown in pots, without much labour being bestowed upon them. I have even seen Camellias showing themselves to great advantage against the back walls of late peach-houses, the peach-trees being trained about fifteen inches from the glass. The shade of the peaches in summer was serviceable to the Camellias; and thus the peach-house, in winter and early spring, was turned into a beautiful mixture of greenhouse and conservatory, by placing plants in pots beneath the peach-trees. But

4thly. *Might not the Pots be plunged in the Bed?* Yes, by all means; but here, to give satisfaction, the same rules as to unity of expression must be observed. Plunge in a separate part, or plunge all, or plunge none. Our correspondent has thought of all this, for he asks whether he should plant out or plunge? This will depend entirely upon the means at his disposal, and the treatment he means to give his plant. To enable him to shift his plants as he wishes on the plunging system, he must treat them much the same as if they were not plunged. The chief difference will be in the ease with which he will maintain a uniformity of moisture and root temperature, as the pots will be wholly concealed, and, consequently, will not be heated, cooled, or dried suddenly. For plants to be moved about, it will not do to let the roots run much through the pots, as thus, without great care, a check might be given when the plants could least bear it; anything, therefore, of a light, easily-moved material, would do for a plunging medium, only the bottom part *must* be open, and, better still, the pots should be placed on two bricks placed edgewise, with a space between, to allow the water to run off freely. But unless for mere economy as respects labour, and looking more natural, we see no *great advantage* in thus plunging pots that are to be moved, as they would require manure water, liberal top-dressing, and fresh soil every two or three years, the same as those grown in pots or tubs in the usual way. We can easily fancy, in addition, how, when the central plants are planted out, those towards the sides may thus be plunged with very good taste; but in this case the bed should be separated into several divisions, so that the moving of the plunged plants may not injuriously interfere with the roots of those turned out. But

5thly. *Is it not necessary, in making up a proper bed for the roots to run into, to plant and pot altogether*, in order that by the curbing of the roots by the pot, there may be a greater tendency to produce bloom, than if the plant was turned out at once? Yes, with many plants—but not so with the Camellia, if it gets *plenty of sunlight*, and the *formation of the border* is duly attended to. If we should be deceived, we can always check growth by an extra crop of flowers, or cutting the roots. Even in these cases, however, I would have no objection to turn out a large plant, by knocking the bottom and part of the sides of the pot away. In this case, as well as planting-out in the general acceptation of the term, we should not think of moving them again without taking the plants up *very carefully*. Deciding, then, upon planting out, and securing a place with abundance of light, the next thing is

6thly. *The formation of the border.*—The simpler this is the better. It should be from two to two-and-a-half feet in depth, the lower six inches filled with brickbats, sandstone, and charcoal on the surface, and this bottoming sloping to a drain either at the side or in the centre. Then the compost should be three-parts loam, one of peat, a little pure sand, and a tenth-part of charcoal, leaf-mould, cow-dung, and may all be used with advantage in pot-culture, but they are *objectionable* when planting out, as encouraging too free growth. So much is this the case, that, instead of giving more peat than

specified above, I would prefer altogether sandy loam and charcoal. The object is to produce firm, short-jointed wood, bristling with flower-buds, and extra strength can always be imparted by surface-dressings and manure-waterings, to stimulate growth in summer, and expand the buds in winter and spring.

7thly. *Planting.*—It is necessary to disentangle the roots a little, and pack them in the fresh soil, placing the old ball just a little lower than it stood in the pot. *The best time of planting* is after the plants have bloomed, have been pruned, and are breaking into fresh growth. Be sure the balls are *thoroughly soaked* before planting, and then, until growth is proceeding freely, it will be unnecessary to saturate the soil, farther than the roots have extended.

8thly. *Pruning. Will they bear it? When is the best time?*—To the first I reply, few plants bear it better. To the second, as soon as they have done flowering. Large unwieldy plants may thus be reduced, and kept in pots if desired. If in good condition, they may be cut in to the old wood with impunity, especially if not more than from two to four years old; but then they must be kept in a close, moist atmosphere, and a temperature as near 60° as 50°. I have broken old stems very successfully in a dung heat. Those who recollect the hospital described for sickly oranges, will not be far from the mark. A shady place in a forcing-house is a good substitute, especially if some moss is kept moist round the stems. The plants must break freely before they are either shifted or planted out. If the latter is done, a little pruning will only be wanted occasionally, if the compost is not too rich.

9thly. *General treatment.*—After planting, say in March, April, or May, water heated to between 60° and 70° should be given at the roots when necessary, and frequent syringings over the foliage, as well as shadings from the brightest sun until August, when more air and unobstructed light should be given. If the sashes could be moved altogether in fine weather in September, the buds would be rendered firmer. If that cannot be done, give all the air and light possible, and lessen the water, so that the plants just stand without flagging in the least. Put on the sashes in October. Curtail the air according to the weather, drying the plants as little as possible with fire-heat in winter, especially the *first* winter; increase the heat, and give warm manure waterings, as the buds swell in spring, using it often, or seldom, according to the state of the plants. 36° in winter, 45° in spring, 60° in summer, 48° in autumn, may be considered safe temperatures when artificial heat is wanted, with from ten to fifteen degrees rise for sunshine. R. FISH.

CULTURE OF THE NEPENTHES.

THIS tribe of PITCHER PLANTS is one of the most curious in the vegetable kingdom. Most of the readers of THE COTTAGE GARDENER no doubt have seen at least the oldest species, *N. distillatoria*, and must have been much surprised at such a strange formation, or, rather, elongation of the leaves into tubes, with a lid to each, much resembling a pitcher, whence its very proper English name.

The pitcher plants are of the number of those bearing male flowers on one plant and female flowers on another; this peculiarity renders it necessary, in order to ripen seeds, to have a plant of each gender. The species consist of—

NEPENTHES ALBA MARGINATA (White-margined N.); Singapore.—The margins of the pitchers are white. 105s.

N. AMPULLACEA (Flask-shaped N.); Manilla.—The pitchers are rather small, and are produced numerously on the plant; it is a handsome species. 105s.

N. DISTILLATORIA (Distilling N.); China.—This is the oldest species cultivated in our stoves. We have seen the pitchers so large as nine inches long; when much exposed to light they are spotted and blotched with rich brown. Before the lid of the pitchers open a liquor is distilled through the stem and leaf into it, till the pitcher is half full; it must have come in that way, because the water is present before the lid of the pitcher opens. This fluid is supposed to be poisonous, for when flies enter the pitchers they commonly die; we have frequently seen them half full of dead insects. Whether the effluvia arising from the dead bodies is conducive to the growth of the plant, and so giving a reason for the formation of the pitcher, is one of those mysteries of the vegetable kingdom not yet, that we are aware of, ascertained. This species is one of the most easy to cultivate. Good plants may be obtained for 20s. each.

N. HOOKERIANA (Sir W. J. Hooker's N.); Sarawak.—This is a quick growing species, with rather small, very pretty pitchers, but it is very scarce. 188s.

N. LEVIS (Smooth N.); Java.—A species with medium-sized pitchers, of great beauty, and perfectly smooth at the edges where the lid opens, hence its specific name. Very rare. 166s.

N. LINDLEYI (Dr. Lindley's N.); Borneo.—This is a beautiful species, with moderate-sized pitchers, of a beautiful purple hue. It is so rare that we fear it cannot be purchased as yet.

N. LODDIGESII (Mr. Loddiges's N.)

N. PHYLLAMPHORA (Flask-leaved N.); China.—The pitchers of this species are of a beautiful green, turning to yellow as they become old. It is a free-growing plant, producing its pretty pitchers freely. 21s.

N. RAFFLESIANA (Sir Stamford Raffles's N.); Singapore.—Of all the family of pitcher plants this is the most noble, producing pitchers as large as a turkey's egg. They are almost as broad as long; on one side rather flat, and the edges of the flat part project out into a kind of fringe. They are of pale yellow, richly blotched, striped, and spotted with brown. A plant five or six feet high, with these large pitchers at the end of each leaf, is a really fine, as well as curious, object. Strong plants may be had for 105s.

N. SANGUINEA (Bloody N.); Java.—The pitchers of this species are the largest of the whole tribe. We have measured one that was a foot long and two inches diameter, with a lid of proportionate size. The colour approaching to a purplish crimson, renders it very handsome, and quite unique. It is a dwarf species; the tallest we have seen did not reach two feet, yet it had four of these large pitchers upon it. For a small collection this is very desirable. It is, however, rare and costly; a good plant is worth 210s. Such persons as are desirous to select a few of the best species, should choose *N. alba marginata*, *N. distillatoria*, *N. ampullacea*, *N. Rafflesiana*, *N. sanguinea*.

Culture.—These stove climbers, being mostly natives of the hottest parts of the world, require to be kept constantly in a high temperature. Even the two species that are natives of China are no exception to this rule. The largest *Nepenthes distillatoria* we ever saw, was one we had the pleasure of cultivating in the pine stove belonging to the Rev. J. Armitage Rhodes, at Horsforth Hall, in Yorkshire. This plant was received from Mr. Knight, of Chelsea, and was so small at the time that the person that unpacked the basket of plants it came in, threw it away, thinking it was a lump of moss thrust in to keep the plants steady. It was, of course, sought for, found, potted, and placed in the bark bed amongst the pines, where it soon began to flourish, and in five years had run the entire length of the house three times, that is ninety feet, and produced several branches and scores of pitchers. This is now more than twenty years ago, and two or three years since we saw the same

plant, in the same gentleman's stove, at Roundhay, near Leeds, in Yorkshire, and still flourishing, though it had been removed from Horsforth Hall to its present habitation, and had, as we were told, suffered much by the transit. This plant we grew in sphagnum, broken potsherds, and charcoal. A hole was made in the bark bed, and a saucer, or shallow pot, to hold water, placed at the bottom of the hole; the pot containing the plant was set in it, and the saucer was kept constantly full of water. The bark was not closed quite to the pot, but a cavity was left all round it. The house was filled with fruiting pines, which our friend, Mr. Errington, knows require a higher temperature than succession pine plants, as also when they are swelling much more moisture in the air. Frequently during the day, with sun, the thermometer indicated ninety-five degrees. These circumstances point out what treatment the pitcher plants require. T. APPELEY.

(To be continued.)

MR. GLENNY ON FLORISTS' FLOWERS.

CINERARIAS (*W. H. S., Dunmow*).—The specimen sent to us is evidently a lateral truss, from which it is difficult to tell the habit. The petals are broad and free from notch, and the flowers close and round, and the colour brilliant blue. Its faults are roughness of texture, and petals cupped in the back, so as to give each a convex face; it is, nevertheless, a desirable variety. (*W. W., Somerset*).—Although both the pink and the white varieties are of large disc, the petals are too narrow. The purple is smaller and better, but of no service. It is, however, better than some of the fifteen which had first class certificates at the National last year. (*Jones L.*).—None of the flowers are an improvement on the variety he saved the seed from, and that has been discarded these two years because beaten. (*J. Allen, Bridgewater*).—One fault condemns the flower sent. The notch is too conspicuous to pass over, nor is there anything novel to save it. It is not nearly so good as *Lady Hume Campbell*. (*E., Maidstone*).—All three are true to name. That he should be disappointed in the quality, after such recommendations, is not to be wondered at, but he will know better than to trust such people again. It is not in this case the grower's fault; he may be ignorant, and send for a public opinion; he offered no other guarantee, and is, therefore, blameless. (*O. P., East Surrey*).—Not one of any use, but he must not despair till all the later ones bloom.

CAMELLIAS (*A. G., Exeter*).—All the five are second-rate anemone or althea-floras, that is to say, dishes full of florets, and, therefore, good-for-nothing. (*B. M., Lancashire*).—One bloom is very like *Palmer's Perfection*, but not so good, yet it may be that grown badly. The other is *Chandlerii*, blotched, in which state it is very pretty. The seedling is good-for-nothing, except for a stock, if healthy. (*Messrs. B. and Co.*).—If these first half-dozen specimens of a batch of "seedlings coming into bloom," be any indication of the rest, they are very discouraging. Unless a camellia be double to the centre, and full on the face, it will not be now tolerated. There are nearly, or quite two hundred varieties figured in a Belgian work, to which we refer our correspondent for some good, and many very bad varieties.

POLYANTHUSES (*Samuel J., Lancaster*).—All we can say of the flowers generally, is that they are naturally too small or starved, but there are none that we should think worth growing larger. The pin-eyed one has exceedingly fine character, and we would by all means fertilize it with the pollen of some good named sort, for if any come like it in character, with a good thrum, it will beat any thing we have, and our polyanthus growers will bear us out in saying, that we frequently see the pin-eyed varieties with more novelty of colour and character than any of the thrum-eyed seedlings, most of which come too like the parents. (*O. D.*).—Too deeply scolloped, and lace not perfect. G. G.

VERBENA CULTURE.

(Continued from page 386.)

SLUGS.—In some soils these are troublesome, often eating off the young newly-planted ones close to the

ground, and paying no regard whether it is a sixpenny or a new five shillings one. In moist weather they will, during the night, creep up the stems, and feed upon the young flower-buds, perhaps those that otherwise would have filled a place in the stand of flowers in the exhibition tent. Again, the plants in pots are often preyed upon by these destructive vermin, and a plant will soon be almost destroyed if they are not looked after and killed. There is, however, one comfort to the grower, they can easily be stopped in the career of destruction, whether the plants are cultivated in beds or in pots. If they are not very numerous, the best way to get rid of them is to gather them up every morning and throw them into some quick-lime, or very hot-water. To attract them, lay a few cabbage or lettuce leaves here and there upon the bed, or amongst the pots in the frame or pits. Under these they will creep for shelter and concealment, and may then be easily found by turning up the leaves. Examine also the pots themselves, lift them up and look into the hole at the bottom; we have often found them there, after searching in vain in the other parts of the frame. The leaves were eaten, and the slime was visible, but the slug was not visible until he was traced to his hiding place. Should they be very numerous, resort must be had to lime-water. This is easily made by procuring a lump or two of unslaked lime, put it into a pail of water, and let it gradually dissolve. If the beds are numerous and large, the quantity of lime and water must of course be in proportion; let it stand till it is quite clear, and then skim off a thin scum that will be found on the surface. Dip a watering-pot into it without disturbing the lime at the bottom, or, what is better, have a tap fixed into the side of the tub above the lime, and draw off the liquor quite clear; then, some dry evening, water the bed or pit thoroughly all over with the lime-water. This will destroy these vermin, especially if the application is given twice, first in the evening and again in the morning. Where Worms are troublesome, one or two applications of the lime-water will destroy them also, even if they are in the pots.

WIREWORM.—In fresh soil this tough fellow will often be found, and a difficult one he is to catch and destroy, but he must be sought for, or many a plant will he devour, boring into the stems, and eating the delicate pith. The plant then, though in appearance green and healthy, will sicken suddenly and die. Previously to planting, turn the soil over very carefully, and diligently look for the wireworms. Collect them into a deep vessel, and if you have any fowls, spread them before them, and they will speedily pick them up, and save you the trouble of killing them. Some will escape, and to catch them, lay traps. These are slices of potatoes or Swedish turnips put into the soil close to the plants, and slightly covered. Examine these traps daily, as long as even a single wireworm is found eating them. With proper care and diligence, this difficult insect may be got rid of, or at least the number greatly reduced.

The larva of the cockchafer, and "*daddy long legs*," are also frequently found in fresh loam. These are not only destructive to the pets of the florists but are also fearfully injurious to what is of far greater consequence, the plants of the farm—such as wheat, potatoes, &c. With the latter case, indeed, we have no business at present; we have only to do with the Verbena. The same means to destroy them must be resorted to as those described above for the wireworm, with the exception of the traps, which are of no use for these vermin. They may generally be found congregated round the plants just under the soil, and may be then caught and destroyed. It is a good method by way of prevention, to put in decayed plants for the insects to feed upon, instead of the plants desirable to be preserved from their attacks. The plant we have found most useful for this purpose is cos lettuce. When one of

these flags, or appears to be dying, pluck it up, and quickly examine the soil in the place where it grew, and destroy every enemy that may be found.

DISEASES.—The diseases that attack the verbena are two. The first may be denominated *apoplexy*, for its effects are equally fatal, and is brought on by too gross feeding, or in other words, by being planted in a soil too much charged with rich nutriment, in the shape of dung or leaf-mould. When these preponderate too much in the compost, the plants turn suddenly yellow and die. There is no remedy for this disease. The only way to act, is to remove the plants so infected, and also all the soil near the place, and put in fresh soil and plants to fill up the vacant space.

The other disease is *gangrene* on the leaves. This is indicated by a small spot which swells and becomes of a bright red colour. If it is allowed to spread much it becomes dangerous to the general health of the plant. The cause is unknown. The remedy is to cut off every infected leaf and burn them. T. APPELEY.

A CHAPTER ON MELONS.

FROM a variety of causes, which we shall not endeavour to explain, the culture of this fruit has not improved in the same degree as that of pines and grapes. Whether it be that the last-mentioned fruits have latterly derived more attention, or that melons were formerly grown to a degree of excellence approaching nearer to perfection than their rivals for distinction, we know not; but certainly, good melons of the "olden times" might compete with those of the present day, with a much better chance of success than good pines and grapes of that same period could with those now produced. Perhaps the one being an annual might give it more claims to attention than the other, and as a high state of cultivation could alone produce a good-flavoured melon thirty years ago, the same may be said now, and all indifferent, or even middle-course systems of management, must still end in disappointment; so that all who think of growing melons must make up their minds to grow them well, otherwise not to attempt them. A good crop is only to be obtained by carefully attending to the wants of the plants from the time the seed is sown, to the time the fruit is properly ripe and out; such is the sensitive delicacy of this plant, that its success or failure is really more the result of our well or ill directed skill, than is that of most other objects placed under our care; not but that nature plays an important part in this affair, but that she requires more of our help here than in most of her other operations.

Notwithstanding the predilection old people have for the favourite contrivances of their younger days, they generally admit the utility and superiority of hot-water heated pits for growing melons, and, in all cases where they are wanted very early, fire-heat, either in that or some other shape, must be adopted to ensure their progress during the dull, dark days of winter and early spring; but as we have, in our article on cucumbers, and at other times, given some directions regarding their treatment at that particular time, we omit repeating it here, and suppose that pots full of healthy plants are awaiting being planted out: and now to the mode in which that ought to be done.

There is a wide difference of opinion respecting the soil most suitable for growing this fruit, and when we see or hear, from well-authenticated sources, of the success that has attended the use of soils or composts diametrically opposed to each other, we are led to enquire if other causes have not also been at work to produce such results. The issue of such enquiries naturally enough leads to the inference, that quality in the soil alone will not ensure success, while, at the same

time, it is obvious it must have a very important effect on a plant of ephemeral existence like the melon. Thus, whatever may be the idle taunts of those who assert their ability to grow melons in "any kind of soil," we may still set it down as certain that a judicious selection must have a powerful effect on the welfare of the crop. Mr. A. may grow melons on a compost enriched by every appliance that a liberal hand can bestow, while Mr. B. obtains a nearly similar result with an almost impervious clay, which, he also tells us, he uses in rude lumps, like the unbroken elements of a railway embankment—and, strange as this may appear, we can bear testimony to their both answering, only, in the latter case, a little finer, richer, and opener compost was added to the clay, but that was not done previous to being put in the frame, so that no amalgamation of a chemical kind had any chance to be effected, but, somehow, by dint of good management in other respects, a fair, good crop of well-flavoured melons followed these extreme measures. We call these measures *extreme*, because the common, and by far the most successful, mode of treating this plant with food suitable for it, lies midway between these extreme cases, and as, with some modifications, most cultivators adopt this intermediate course, we will here endeavour to explain it.

Many years ago a celebrated pine grower, in a treatise on the cultivation of that noble fruit, affirmed that the soil which would produce good wheat would grow good pines. Now, whether this was really the case or not, or whether the success he had with that fruit did not owe its existence to the other means he used, or not, I cannot now stop to inquire, but certainly he did produce fine fruit. Now, though we do not here enter on the merits of that soil for pines, we have a much stronger conviction of its being able to grow good melons; and that sound, heavy, loamy soil, which produces the best samples of wheat and beans, is unquestionably the best likewise for melons, modified, perhaps, a little by the circumstances rendered necessary by the kind of melon grown: for instance, if it be a rank growing, scarlet-fleshed variety, withhold manure, or manure water, in any shape; whereas, if it be a weakly, delicate kind, deserving, nay, demanding, a more nourishing diet, then add some such auxiliary to it, only do not forget that an undue luxuriance in habit is attended with a want of fruitfulness in the plant; so that in preparing and arranging your soils, it is almost as well to err on the side of productiveness as on that of a useless luxuriance, because the former may be assisted by liberal doses of liquid manure at the fitting time, while the latter is difficult to curb into that condition necessary to make it useful, without, at the same time, incurring wounds which tell on its after welfare.

The kind of soil we have used with the best success (and we have used soils of various kinds), is fresh pasture loam, which has lain somewhat thin some two or three months, and has been turned once or twice during that period. This soil, of which the turfy portion formed no inconsiderable part, requires no more than that period to prepare; if it lie much longer, the herbaceous matter becomes so much decomposed as to lose much of that openness so necessary to vegetation—and as we do not use any dung, leaf-mould, or other lightening substance, and the loam we expect to be inclined to "stiffness," it is proper not to allow it to run into a hard impenetrable mass. Now such a soil as we have represented, is just the one where wheat and beans are grown to perfection, and we advise our amateur readers to look around them and see where such an one can be had. It must be remembered that the poor, thin stapled land we often see laid down with grass, with the water standing all the winter in every little hole made by the feet of cattle, is not the kind likely to produce this fruit (or any other) to perfection; and the amateur has not a bad guide in the quan-

tity and quality of the grass growing on the spot he thinks of procuring his melon soil from. Substitutes for this may certainly be had; we have used a compost soil that had been lying many years, and have taken it indiscriminately from a ploughed field; and, on more than one occasion, have used rolls of turf that had been out for laying down, but not being wanted we put in our melon bed, not more than a month after being cut; and we have, for experiment's sake, used an exceedingly light soil, in which leafy matter formed quite one-third of the mixture; but this last was too open—a gross luxuriance was the result, and what fruit was produced was more owing to the modifying circumstances of other things bearing on the crop, but the other cases noted above have all succeeded tolerably well. Our readers will easily comprehend why such discordant materials should all terminate in the same end, by inferring that other causes were at work as well, to assist, regulate, or counteract, as the case may be, any injudicious matter contained in the compost.

We must leave our remarks on the stopping, thinning, watering, and general management of this fruit, as well as a notice of some of its varieties, to another week, at the same time calling the amateur's attention to the state of his dung bed, if he have one; as the drying winds, which come at this period, generally diminish the heat so much as to call for renovation from lining, &c. Of course the usual system of stopping and regulating the shoots will be proceeded with as directed in back numbers.

KITCHEN GARDEN SUNDRIES.—The cold, drying winds we have had the latter part of February, will have exercised a beneficial effect in preparing the ground for the reception of seed and root crops; but such things as cauliflower, cabbage, &c., which might have been planted out just previous to its setting in will have suffered very much; so that it is prudent to suspend any operations that way until the return of more genial weather. In the meantime, take advantage of the dry state of the ground, and let every available inch of it be dug, forked over, or trenched up, as the case may be; and what seeds recommended to be sown the last few weeks, may yet be done, if not done then: to which we may now add the *principal crop of Celery*, which being a small seed, we usually sow on a raised bed—often an old hot-bed of last year; the soil on which being tolerably fine, light, and rich, is secured by a framework of rough slabs running round it, but no glass is used, unless for a special purpose. On such a bed we also sow *Sweet Marjorum*, *Burnet*, and some other things, but *Basil* had better not be sown until a later period, and then on the spot intended for its being grown on. No heat is required, but the elevated position partially protects such tender seeds from the casualties common to the season and ordinary ground beds. Of the various kinds of celery in use we cannot say much. We have ourselves grown *Seymour's Superb White* for many years, but we could never see any difference between that and a former variety called *the Silver*. Other growers have also given their names to celery, and we have found *Cole's Red*, to be very good one season and indifferent the next, so that it is no easy matter to recommend one kind in preference to another, without having some knowledge of how the seed was saved, and even then the current season has a great influence on the quality of the crop. *Tomatoes* may now be sown, and attention paid to *Capricious* that may be coming up in seed pans. Pricking out or potting off must be attended to at the proper time, so that strong, robust plants may be in readiness to plant out the beginning of May. Finish *planting potatoes* with all haste, and remove all crops not likely hereafter to be wanted, as *Brussels sprouts*, *Savoy*, &c., which, if allowed to run to seed, exhaust the ground. Attend to the *linings of Cu-*

cumber and Melon beds, and give all other objects that attention the season demands. J. ROBSON.

THE GOLDEN AND THE SILVER PHEASANTS.

(Continued from page 342.)

SOME readers may be aware of the metamorphoses which the French theorists of the last century asserted to have taken place among the various species of pheasants. Even yet the bold hypothesis is far from exploded. It is not out of place, therefore, even now to quote the conclusion at which Temminck arrived; namely, that "the arguments by which Buffon, or rather his illustrious fellow-labourer, endeavours to prove the specific identity of our silver pheasant with the common pheasant of Europe, are not very plausible. Indeed, in these days, we cannot permit any doubts to be entertained respecting the distinction which exists between the two species."

I translate the description of the bird given by the above-named naturalist, as more precise than anything which I could myself offer:—

"The ordinary length of the male of the silver pheasant is two feet eight inches; its wings, when folded, do not reach further than the origin of the tail, which is long and much upraised (*tres érigée*); it is composed of two planes which are inclined to each other at a very wide angle; the two middle feathers are long and flat, their shaft is curved, and describes a parabola; those which come next slope in the same plane; the bird carries this tail somewhat raised, a position which is necessary to prevent the tips of these long central feathers from dragging on the earth.

"Naturalists are in error, when they say that this pheasant, like many other species of the same genus, has on its cheeks a *naked* patch more or less considerable: the apparent nudity does not really exist among the pheasants; all those species whose temples are not covered with feathers, have them clad with a thick skin capable of an extension, which takes place at the season of love, or when the bird is agitated: this skin is covered with minute bristles, forming a very close tissue, resembling velvet; these little feathers, of a peculiar nature, are tinted with the most beautiful red, or are more or less pale, according as the bird is in a state of excitement or of calm. They are particularly liable to discolouration after death; which makes me believe that their loose filaments are of an entirely different nature to the webs of feathers, and that they rather are fine transparent membranes into which the blood is injected, causing the brilliant tint with which they are seen to glow, especially at the season of their amours.

"The male of the silver pheasant has its cheeks covered with a tissue such as we have just been describing; the membrane is capable of extension; it is continued over the eyes in the form of a comb, and is pendent on each side along the lower mandible of the bill; the head is adorned with a long crest of loose feathers drooping behind, of a purplish-black: black stripes of extreme delicacy traverse the plumage obliquely from the top of the neck and the upper parts of the body, on a ground of dazzling white; this latter colour contrasts very agreeably with the purple-black with which the front of the neck, and the lower part of the body are covered; the wings and the tail are white, and striped like the upper plumage, except the two middle feathers of the tail, on which there are no black stripes; the iris is reddish-yellow; the beak is yellowish, inclining to brown at the point; the feet are of a beautiful lake red, and the long, and very sharp spurs are white.

"The trachea of the female silver pheasant is straight in its whole length; it does not contract towards the inferior larynx, as in the cocks; the three half rings of the upper part of each bronchia, are separated by two broad membranous intervals; the first half ring is fixed by its ends to the osseous septum (*la traverse osseuse*), joined (*soudée*) before and behind to the last ring of the trachea. The upper larynx and the hyoid cartilages resemble the same parts in the cock.

"The female is invariably less than the male; she is still further distinguished by the colour and form of her tail,

which is simply vaulted, and is without the two long feathers which, in the male, are bent into an arch; in the female, these two feathers of the middle of the tail are straight, and repose upon the lateral feathers. The eyes are surrounded with a red tissue, but less extended than in the male; on the top of the head are feathers of a dark brown, forming a sort of crest; the throat is whitish; the neck, breast, back, rump, wing coverts, and those above the tail, are of an earthy brown; the belly, the abdomen, and the lower tail coverts, are of a dirty white mixed with brown, and cut by transverse black bands; the quill feathers are blackish; the middle feathers of the tail are of a brown approaching to caroty; the laterals are striped obliquely with black on a white ground mixed and stained with brown; the iris and the beak are yellowish brown; the feet lake red.

"The male silver pheasant is of a very warm temperament; he pairs from the end of April; when the female has sufficient liberty, she attends with much assiduity to the care of her brood; incubation lasts twenty-six days (this I have verified); the number of eggs varies from eight to fourteen, it rarely amounts to eighteen; their colour is yellowish-red (*roux*), (much resembling that of the best-bred Cochin-Chinas), often inclining to whitish; sometimes they have a few little brown specks.

"The silver pheasant inhabits the northern regions of the vast Chinese Empire; it has been transported to almost all the countries of Europe, where, with the least possible care, it succeeds perfectly; it is much more easily tamed than the common pheasant, the ornament of our woods; its young are less difficult to rear than those of the golden pheasant; lastly, it is the hardiest of all the species of pheasants with which we are acquainted; it would even be suitable to stock our woods and parks, did not its plumage, of such dazzling whiteness as particularly to attract the searching glance of birds of prey, offer an objection to our rearing it for that purpose."

So far Temminck, whose description is here given for the first time, I believe, in an English form.—D.

(To be continued.)

YORKSHIRE ASSOCIATION FOR THE IMPROVEMENT OF DOMESTIC POULTRY.

UNDOUBTEDLY the best show of domestic poultry we have yet seen (excepting that only of the Midland Counties), was held by the above Association in the Riding School, St. John's Lane, Halifax, on the 13th and 14th of the present month, and which was fitted-up in a very convenient and suitable manner for the occasion. The number of pens entered for competition, as taken from the catalogue, was 324, exclusive of a very carefully-selected stock sent for sale by Mr. J. Bailey, of Mount-street, London, and Messrs. Baker & Co., of Chelsea, which greatly added to the interest of the Show, and made up the number of pens to nearly 400.

The stock exhibited was, upon the whole, of more than ordinary merit, and indicates with what care and attention the amateurs of Yorkshire and the adjoining counties have cultivated the different breeds of domestic fowl. Although the show was much better than its most sanguine promoters had anticipated, both as it regards the number of pens and the quality of the stock, yet it is to be regretted that many of the classes were both badly and scantily represented; this deficiency, we have no doubt, arose in a great measure from the want of a better classification in the prize list issued by the Association, and which we hope to see revised another year, so as to include the whole of the varieties of Hamburgs, Polands, Bantams, &c.; as it is scarcely to be expected that fowl will be sent to compete in a class where but two prizes are offered, and in which there are several varieties to compete for them, as in the Polands,—a class in which but few specimens were exhibited, and those of very inferior quality, and which made but a shabby appearance beside those more favoured, but certainly not more beautiful or useful associates.

The honorary secretary and committee have done much to establish a show of such magnitude and importance, and we feel assured they will at once see the necessity of correctly classifying the prize list for another year, as upon

this particular mainly depends the success of their annual show; and, as a principal step in the amendment, we would strongly recommend them to abandon the provincialisms used by them to describe the family of Hamburgs, and at once to adopt the nomenclature of the Rev. E. S. Dixon, M.A., in his "Ornamental Poultry," and then we think they will not have to regret the absence for competition, of one of the most beautiful of these varieties, viz., the "Golden Pencilled Hamburg," known in the north as "Bolton Bays," and for which no prize was offered at all. This deficiency was, however, partly made up by a few very choice and perfectly marked specimens sent by Mr. Bailey for sale.

The Spanish Fowl were, as a class, worthy our especial notice, and those exhibited by Capt. W. H. Hornby, R.N., of Knowsley, who carried off the first prize, were, with the exception of size, birds of rare excellence, and, with care to this deficiency, we think that gentleman has nothing to fear from future competition. The Cochon China class deserves our high commendation, they were both numerous and good, and some specimens were sold for a much higher price than on any former occasion, but we observed in this class a great want of uniformity of colour and character in many of the pens, that in other respects were praiseworthy. For one, belonging to Mr. James Cattell, of Birmingham, which obtained the prize for the best cock in the exhibition, an enthusiastic amateur from Lancashire offered £25, but the sale on these terms was declined. In various cases, specimens sold for £5 each, and a cock and a second-prize hen obtained as much as £10. In the whole of the Hamburg classes, we saw but few inferior pens; indeed, these varieties have been bred, both in Yorkshire and Lancashire, with great taste and discrimination, and for which they have, for many years, enjoyed a far-famed reputation. The Bantams were far below our expectations, but we must not indiscriminately condemn them all, for the pen of Golden-laced sent by Mrs. Hosier Williams, of Shrewsbury, and to whom was awarded the first prize, were birds of singular beauty, and readily found a purchaser at the price affixed to them in the catalogue. There were also good specimens of Black Bantams exhibited.

We are sorry to observe that the attendance was not so good as a show of this importance entitled us to expect, but hope another year that it will be held in a town of easier access, when we have no doubt that the number of visitors will be considerably increased, both from the locality and a distance.

The judges were—Mr. Bond, Leeds; Mr. Nutt, York; Mr. Bissell, Birmingham. We gave a list of the prize winners in our last.

[We have another report of this meeting, for which we have not room to-day; but it contains some excellent suggestions, and shall, therefore, appear next week.—
ED. C. G.]

TO CORRESPONDENTS.

* We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of the Cottage Gardener, 3, Amen Corner, Paternoster Row, London."

GUTTA PERCHA TRELLIS.—F. G. obligingly writes, "I beg to inform 'R. W.' (page 297) that I use gutta percha of the strength of window-blind cord; indeed, my first essay was with an old blind cord that had broken, and was too short to use again for that purpose. I knotted it at one end, then run it through the iron pins along the sash, and stretch it very tight, making another knot at the other end; when the cord is let loose, it contracts, and is sufficiently tight. I think climbing plants like it better than wire. The price is a penny a yard in small quantities, but less if you take a large quantity, in which case it is usually sold by weight."

SIDONIA GERANIUM (*Thornycroft*).—"A good tale is not the worse for being twice told." Our humorous correspondent has one seedling plant from Sidonia, for which he claims the donkey of Mr. Beaton. The first increase of it is to be sent to the secretary of our flower-garden, who accepts it as a very high compliment indeed. "My plant ripened one seed, which never left my thumb and finger until I had it sown, and the seedling is now in a sixty pot in my stove." "The leaf being downy," is a certain mark that you have a cross, notwithstanding the "lank habit." The seed was set in the full sun and wind, out of doors, the pot being placed within another to protect the roots from the sun." Let this valuable memorandum be entered in the stud book this afternoon. "The lovely, fairy-like little things, which sprung from the union of *Fulgidum* with the tuberous sections, perished, crushed and overwhelmed

by the stouter offspring of the coarse *Cuculatum* and *Grandiflorum*, which latter, however, had the greatest hand in originating our fine sorts." No, no! *Grandiflorum* only gave the light colour. It was *Cuculatum* which brought in both the coarse habit and the still coarser foliage of the florist's delight. Though Sweet is our best authority, he is by no means always correct; and if you are a general reader, you must know that the fallacy of "any two sorts" crossing is handed down to the present day. After what the florists have done in *Dianthus*, one would, indeed, suppose many hidden treasures in the family; but all the wild and alpine kinds are most difficult to unite; they seem to want a long course of garden cultivation before they can be crossed.

FLOWER-BEDS (*Violet*).—The *Nierembergia gracilis* will flower in the autumn from seeds sown early in March, and so will the white *Campessula carpatica*. *Lupinus nanus* is a very pretty thing; it will be in good time if you sow it in the bed early in April. It makes a pretty edging a foot high, and flowers on to the end of the season if you do not let it seed. Increase your stock of the *Unique* Geranium as much as you can, and now is your time; you cannot have too much of it; a whole bed of it edged with your pink variegated Geranium, Mangle's, would look splendid, and so would an edging of it round the scarlet sorts, if you keep it trained down to the ground. Your white ivy-leaf is also a beautiful thing to edge a scarlet bed, or to make a small, low, white bed by itself. It is also a nice thing for a rock, or for trailing round a basket or block, and for training against a wall or paling few are better. All your Verbenas, Calceolarias, and the Petunias, are very good, indeed the best of their colours. The *Cuphea* will not come into your arrangement, but you might try and find a corner for it, to see how you would like it another year, and perhaps you would put it into No. 6 or 7, the only two beds in your very nice garden where it would suit. We must congratulate you on the way you arranged the colours in this garden—surely you cannot be a young hand at this, the very highest point in gardening. You might improve the ends of the beds from 8 to 15. We would scollop them as you ladies do the ends of your ribbons; but, perhaps, you prefer square ends; if so, by all means do not alter them. Your bed, 10, does not match 11 opposite, nor 8 and 9 on the other side of the centre. Emma is a beautiful bedder, but you have no match for it; it ought to be white to match 9, as you did with 8 and 11; but try it this year as it is, and mark our objection, then, we think, you will agree with us.

FLOWER-BED (*Sarah*).—The bed in which the mixed Verbenas failed last year we would plant with *Tom Thoms* Geraniums, after digging it rather deep and adding some fresh soil to it. Mixed Geraniums would also look well in this bed, or why not try Mangle's Variegated Geranium in it, if you have plants of it? We do not know *Scarlet Erysimum*; the only *Erysimum* worth growing has yellow flowers. Your *Ethulia* is hardly worth growing; it is a stove annual with composite flowers. The *Grammathe* is a little Cape succulent, with yellow flowers, requiring a greenhouse in winter, but would grow out on rock-work in summer. It will grow in any poor, loose soil, but is not worth much trouble.

EXPOSED VERANDA (*P. B. B.*).—What is the "best creeper for an exposed veranda" depends as much on taste as on the kind of plant. The *Sweet-Scented Clematis* and the *Clematis montana* are two of the best of that family for the situation. Then there are six or seven kinds of *Climbing Roses*, which require such a shelter as your veranda gives, which we have lately enumerated. For fast growing, and hardiness to stand any rough treatment, none are better than *Periploca Græca*, but the flowers are of no account. The American creeper, *Ampelopsis*, is a beautiful plant in the autumn for such a place, owing to the fine tint of the leaves. All these things, and hundreds of others, are equally good in their way if we take a fancy to them. We would plant the two *Clematis*, as they never give trouble with insects. *Montana* blooms finely in May, and the other from July to a late period.

UNIQUE GERANIUM (*An Amateur*).—By all means put the cuttings of this, and all other Geraniums, into heat when you propagate in the spring. It is only in July and August that they do better in close cold frames. *Gracilis* or *Riccartonii* are the two best *Fuchsias* to plant in clay soil, and *Glabosa major* the next best; but you must put some light soil in with them to get them to start freely. The two first-named will live out of doors without any protection, but the latter requires some slight covering.

COCHIN CHINA FOWLS.—X. Y. asks for the cause of the combs of the Cochon China cocks becoming white, and if there is any means of prevention or of cure? It does not appear to affect the health of the birds, but greatly takes from their appearance. If by whiteness is meant paleness or very light flesh-colour, it certainly indicates that the birds are not in health, or at least are out of condition, and not up to the mark. For this, high-feeding will be the best remedy; but if the whiteness resembles the earlobe or the face of a Spanish fowl, it is something very uncommon and remarkable. We have never seen or heard of any cock thus white-combed. There is a wild species, *Gallus Stanleyi*, or *Lafayetteii*, which has a yellow comb edged with red. But perhaps the whiteness on X. Y.'s birds may be only a scurvy or exfoliation of the cuticle, which will be soonest cured by warm weather.—D.

JET BLACK COCHIN CHINA FOWLS.—An advertisement would be the most likely means of obtaining these curiosities for B., if such are in existence. There is no knowing what strange fowls may be brought to light, for the remote nooks of the East are just now being ransacked for poultry rarities. Unfortunately, most sailors are so totally unacquainted with what would be prized or rejected at home, that they bring back things that only deserve to have their throats cut, and may leave behind them what would realise a little fortune. When we hear of £25 being offered and refused for a single cock, it does not seem so absurd as it would have done ten years ago, to suggest the sending out, either by subscription or by a society of gentlemen, of a competent and instructed live poultry and bird collector, (after the example of the botanical collectors of the horticultural societies, and the great nurseries), to lay hands upon whatever is new and valuable. There is a great deal still to be imported, of immense interest to all lovers of poultry who extend their views beyond what may happen to be the reigning "fancy" of the day, whether Sebright's, Cochon Chinas, Almond Tumblers, or what not. For instance, a letter just received from India informs me, "I have ob-

tained for you a pair of Singapore bantams, true to the wild colours, and smaller than the Arakan cock who is on his way; holding, too, as it appears to me, the same relationship to the wild fowl of the Malayan Peninsula, as the Arakan does to the wild Arakan race."—D.

BELGIAN DAISIES (*Darlington Florist*).—By all means plant the new Belgian Daisies out at once, and see that they do not suffer by want of water in summer, as they are very apt to do the first season after planting. They are very pretty, and worthy of extended cultivation, and they like a rich, light soil, and an open situation. No one here can yet tell which are the best varieties of them, but they are cheap enough, and no one will grudge if one or two of the kinds should not suit our climate.

FLOWER-BEDS (*Novice*).—3, 4, 5, and 6, are just to our mind; two scarlets, and two yellows, just in their proper place. Any plants not of a very bright colour would do in 1 and 2. The purple petunia intended for 3, must be a dark purple, and the heliotrope will look better in 1, than the white petunia, because 1 and 3 are match beds, like the two scarlets and two yellows.

JACOBINA LILY (*M. D. P.*).—The offsets of this beautiful bulb must be treated like the parent bulb, in all respects, only that you may plant them out any time in March, as you would so many potatoes, whilst the old bulbs ought to be kept in doors till after they flower.

PILLAR ROSES (*E. H.*).—Your gardener is quite right about the size of the wooden posts, they must be four inches thick, as he says. Iron rods well fixed in stone, would do, if they were only an inch in diameter. As you are going to festoon from the pillars, the uprights need not be quite so thick as for single pillars. You will see the best kinds in the number for November 27th, 1851.

SIX GOOD FANCY GERANIUMS (*Eliza B.*).—Hero of Surrey, 3s 6d; Albion, 2s 6d; Anna, 3s 6d; Bouquet tout fait, 2s 6d; Jehu (best variety), 1s 6d; Reine des Francsais, 2s 6d. You can have *THE COTTAGE GARDENER* bound two volumes in one, and can have covers for the purpose at Messrs. Orr & Co., Amen-corner.

SIX GOOD PHLOXES (*A Correspondent*).—Abd el Medschid Khan, 2s 6d; Campanula alba, 1s 6d; Imbricata, 1s 6d; Madame Jolly, 2s 6d; Madame Regal, 2s 6d; Pastor Clement, 2s 6d.

TWENTY-FOUR FANSIES (*J. Short*).—The following will answer your purpose:—*Abd el Kadir*, dark self, 1s 6d; *Barryer*, dark mulberry, 1s; *Emma*, yellow self, 1s; *Lucy Neal*, dark, 1s; *Ophir*, yellow, 1s; *Satirist*, bronze, 1s; *White Sergeant*, white, 1s; *Bellona*, yellow and purple, 1s; *Duke of Norfolk*, yellow and rich bronze, 1s 6d; *France Cyclope*, straw and purple, 2s; *Mr. Beck*, yellow and rich maroon, 2s; *Ophelia*, yellow and bronze, 1s; *Polynice*, yellow and bronze purple, 1s; *Rubens*, rich yellow and red, 2s; *Supreme*, yellow and maroon, 1s; *Zabdi*, yellow and bronzed red, 1s; *Almansor*, purple, 1s; *Bertha*, lilac, 1s; *Climax*, white and blue purple, 1s; *Esquille*, white and lilac, 1s; *Madame Sontag*, white and purple, 1s 6d; *Mrs. Trotter*, white and purple, 2s; *Mrs. Beck*, white and dark purple, 1s 6d; *Princess*, white and blue.

DENDROBIUM MOSCHATUM (*Silae*).—This, "consisting of fifteen stems, three feet high, having made its growth last summer, does not as yet show any signs of blooming, although it is kept dry and at a temperature of from 60° to 75° by day, and about 50° by night. Will it shed its leaves before blooming or not? and when will it be expected to bloom?" It will shed its leaves before it flowers. The season is June or July. Your winter temperature is too high; 55° to 60° by day, and 50° by night, will be ample heat for it. Give no water at the root, and very little in the air during the resting season.

BEES AT CAMBERWELL (*H. W.*).—Wildman kept his bees in Holborn, and those in the Crystal Palace did wonders; therefore they may be tried at Camberwell with a fair prospect of success.

TAYLOR'S HIVES (*B. B.*).—Additional ventilation, if required, may be given by inserting between the stock-box and super four pieces of sheet lead, of about one-eighth-of-an-inch in thickness, just so much as not to allow of the bees passing out. London barley sugar is sold retail in Bury St. Edmunds at 9d. per pound, therefore it may certainly be bought wholesale in London for 6d.; but it is very easily made. A receipt has already been given by us more than once.

FAVIT WALLS (*Nemo*).—If you do not plant on the north side of your wall, you may use arches, but remember it may prove some difficulty when your trees need removal. If your soil is properly prepared, there will be plenty of food for the tree roots on one side only, and those under the arch will at times be subject to much drought. Garden walls are built of various heights—generally from nine to twelve feet. The higher the walls the more sheltered will the garden be. We should not go beyond twelve feet. We should prefer moveable copings; these are generally of wood, placed on iron brackets built in the wall. Stone copings, fixed, answer very well with us; they project about nine inches on each side. They are laid with a convex facing upwards, but it would be better concave, the water being collected in the centre groove, from whence it may be carried at intervals, by zinc or other spouting, into drains. This would do away with drip.

FIG-TREE (*W. T.*).—You had better destroy your fig-tree, which never ripens its fruit among others which do, and plant a fresh, strong plant. Your grafted fig would constantly plague you with suckers.

CUCUMBER CULTURE (*A Constant Reader*).—If you look to page 243 of our present volume, you will see the process of raising young cucumber plants detailed up to the time of planting out, which is usually done as soon as the plant has two rough leaves. A sound good loam, mixed with a little leaf-mould, suits them best; but as a paper on their after treatment will shortly appear, we will only say that *Mill's Jewess*, and *Kenyon's Hot-house* are both good kinds—the former for size, the latter for its prolific properties; but many others are equally good.

APPLE-TREES WITH MISTLETOE.—*J. K. T.* says:—"I do not think your correspondent C. J. P. would be able to get any young apple-trees with the mistletoe on them, if she could, they would very probably be broken in carriage. The only plan is to get some young plants of the

mistletoe, which can be found by scores in old apple or white thorn trees, and easily transplanted, by removing them with a little of the bark adhering to them, and then making an incision in the bark of the tree you wish them in, and tie them firmly round with some old cloth or matting. I have sent numbers of young plants by post, to friends in different parts of the country." We shall be glad to hear from you at any time.

FUEL CONSUMED UNDER A BOILER.—*An Old Subscriber* has obliged us with the following:—"Your correspondent, X. Y., at page 230, makes some enquiries about the consumption of fuel in a hot-water apparatus. I have a small greenhouse twelve feet by ten feet, furnished with twenty-feet of 3½-inch cast-iron piping, exclusive of twenty-four feet of 1½-inch gas tubing to fill up the distance between the boiler and house, those connecting pipes I cover with woollen rags, fasten four laths on the tube, and fill up the angles and spaces with saw-dust, so that no heat may be lost in this part. Last week (which was a very cold one) I find that the fire consumed 70 lbs. of coal, or 10 lb. per day. The price of coal here is 4d. per cwt., delivered. From this it appears the cost in this case will be twopence-halfpenny per week. This is certainly a very trifling expense. The coal of this locality is considered about five per cent inferior to the Newcastle coal. I gave for my boiler £1 14s. 6d.; it was charged 10s. per cwt. I have no doubt the parties would furnish any number at the same price. It is of a peculiar construction, the water space exceeds little more than one-half a cubic foot, or say about four gallons, yet with this small capacity, there is upwards of six feet superficial heating surface in the fire and fire-box together. You may judge of the action, when I tell you that it only requires twenty minutes to get the hot water through the length of the piping named. I use 6 lb. of coal for the night operations, and 4 lb. for the morning, and the temperature never below 40°. My greenhouse has two openings in front, twelve inches long each, and one-inch-and-a-quarter wide. My outlet ventilation is four inches square, communicating with a shaft or dry chimney. Is this sufficiently ventilated? They are open night and day. I may mention that I can open the front sashes if required." Your ventilation is good and sufficient, but of course at times the thermometer will warn you to open the windows.

LICHS ON CANARIES (*A Subscriber*).—Powdered henbane dusted under the feathers is said to destroy these vermin.

NAME OF FLOWER (*Sarah*).—Your note reached us, but the flower was gone.

MARIE LOUISE PEAR-TREE (*A Subscriber, Chester*).—Your tree is affected with canker. It is rarely that a tree once so diseased can be cured. Draining the soil, cutting away the tap-roots, removing the diseased shoots, and mulching to induce the fibrous roots to keep near the surface and increase the vigour of the tree, may be tried. In Mr. Errington's tying-down system, the large branch remains permanently. The variety you mention is not at all superior to the old Walnut-leaved Kidney potato.

SALT FOR ASPARAGUS-BEDS (*C. A. M.*).—You may apply this now, and it is a good plan to repeat the application monthly until the stems turn yellow in autumn. If applied thus regularly, about three pounds to thirty square yards will be sufficient. Let the lettuce seed be sown elsewhere. There is no better application to asparagus than salt.

THE ENGLISH BEE-KEEPER (*Juvencia*).—It is published by Messrs. Rivington, London. Price about four shillings.

CHICORY CULTURE (*J. Short*).—Some of our Guernsey or Jersey readers will oblige us by sending us the mode and time of sowing and cultivating chicory. The covering you mention would answer for vines.

FLAVOUR OF GREEN TEA (*X. Y. Z.*).—When we said at page 232 that "one-third of a dried bud of the black current" was sufficient, we meant what we said, and did not mean either "a young leaf, a single berry, or a bunch of the ripe fruit."

MELILOTUS LEUCANTHA (*B. B.*).—This is a biennial, and should be sown annually. You will see what we have said about salt for asparagus. Ale made from sugar keeps as well, and is as suitable for any stomach, as ale made from malt.

GAS TAR (*O. O.*).—We do not recommend this so strongly for manure as we do the ammoniacal water from the gas-works. The tar is neither so powerful, so prompt in its benefits, nor so manageable.

TURNER'S BUDDING INSTRUMENT (*Rhodon*).—Write, with your address, to Mr. John Turner, Parkwood Springs, Neepsend, Sheffield.

TANNING GARDEN NETS (*A. R. S.*).—One pound of oak to a gallon of water is the proper proportions for a dye for your garden nets. We answer each correspondent as soon as we obtain the information he requires.

FLOWER BEDS (*Florella*).—We cannot undertake to plant these for any one. The most we can do is to suggest improvements, when the plans and proposed arrangements are sent to us.

GALVANISM FOR PLANTS (*A Window Gardener*).—This is a disputed question; we will give you a fuller answer next week.

PLANTING OUT CAMELLIAS (*C. A.*).—See what Mr. Fish says to-day.

NAMES OF PLANTS (*J. G.*).—6. *Abutilon striatum*. 7. *Gomphocarpus fruticosus*. 8. *Eucynymus japonicus variegatus*. 9. *Eucynymus lucidus* (?). 10. *Phillyrea angustifolia*. Of the others we are not certain, but perhaps may tell you next week. (*H. W. F.*)—Your orchids were 1. *Oncidium ornithorynchum*. 2. *Rodriguezia crispata*. 3. *Epidendrum crassifolium*. (*J. Stanley*).—Your plant seems to be *Aloe variegata* or partridge-breast Aloe. (*Inquirer*).—Your "vegetable bodies" seem to be mistletoe seeds with the glutinous coat removed, perhaps by birds.

LONDON: Printed by HARRY WOOLDRIDGE, Winchester High-street, in the Parish of Saint Mary Kalendar; and Published by WILLIAM SOMERVILLE ORR, at the Office, No. 2, Amen Corner, in the Parish of Christ Church, City of London.—March 4th, 1852.

THE COTTAGE GARDENER.—ADVERTISEMENTS.

NETTING.—Superior Tanned

Garden Netting, for protecting Fruit-trees from frost, blight, and birds, or as a fence for fowls, pigeons, tulip and seed-beds, can be had in any quantity from JOHN KING FAIR-LOW'S Fishing-Rod and Net Manufactory, 8, Crooked Lane, London Bridge, at 1½d per yard one yard wide, 3d two yards, and 6d per yard four yards wide. Forwarded, carriage free on all orders over 20s, to any part of the kingdom on receipt of remittance, post-office order, or stamps.

One hundred per cent. cheaper than any other Manufactory.

FRUIT TREES.—Worsted and

New Twine Netting, for protecting Fruit Trees, Flower and Seed Beds, from frost, blight, and birds, or as a fence against fowls, cats, &c., can be had any width, length, or quantity. New Twine Netting, one yard wide, 1½d per yard; two yards wide, 3d per yard; 4-inch mesh ditto, two yards wide, 4½d per yard. Worsted Netting, two yards wide, 4d per yard. Sheep-folding Net, of superior quality, four feet high, 4d per yard; three Stranded Cord do., 6d per yard. The Repaired Tanned Fishing Netting, two or three yards wide, 1½d per yard; four or six yards wide, 3d per yard,—exactly the same as advertised by others at double the above prices.

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TO ALL WHO HAVE A GAR-

DEN.—On the 1st of March will be published, price 1s, crown 4to., No. 3 of the **ENGLISH FLOWER GARDEN**, a Monthly Magazine of Hardy, Half-Hardy, and Window Plants, with five beautiful coloured figures on Steel, and sixteen pages of Letter-press. By W. THOMPSON.

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GARDENING FOR FEBRUARY.

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CHOICE AND RARE SEEDS, selected from General List, sold by WILLIAM DENYER, Seedsman and Florist, 82, Gracechurch Street, near the Spread Eagle, London, at the following price per paper:—

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PANSY, from the best named flowers, 1s. Saved by Thomson and other eminent growers. This may be depended on as being sure to produce good flowers.

SCHISANTHUS RETUSUS ALBUS, 6d. Pure white, with orange centre. One of the most beautiful annuals grown, either for pot-culture or the open ground.

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SCANDIX BULBOSA, or Turnip-rooted Chervil, a delicious vegetable, 3d.

ONION SQUASH, red flesh, globular shaped, 6d. A delicious variety of Vegetable Marrow.

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THE ONLY STOVE WITHOUT A FLUE, for which Her Majesty's Royal Letters Patent have been granted.

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7 " 1 5 0
8 " 1 11 0

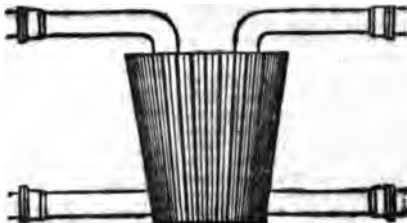
CAUTION.—An Injunction having been granted by the Vice-Chancellor in the case of "NASH v. CARMAN," restraining the Defendant from making or selling any colourable imitations of the Plaintiff's Stove or Fuel, the Public is respectfully informed that the "JOYCE'S PATENT STOVE," "WITHOUT A FLUE," and the "PATENT PREPARED FUEL," can only be obtained from the Proprietor or his authorised Agents. Every genuine Stove has the Proprietor's name and address on a brass-plate on the front:—

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WEEKLY CALENDAR.

M	D	M	D	MARCH 11—17, 1852.	WEATHER NEAR LONDON IN 1851.				Sun	Sun	Moon	Moon's	Clock	Day of
					Barometer.	Thermo.	Wind.	Rain in In.						
11	Th				29.970—29.934	48—24	N.W.	—	25 a. 6	56 a. 5	morn.	20	10 7	71
12	F			Gregory.	29.737—29.629	42—29	S.	23	22	58	1 11	20	9 51	72
13	S				29.754—29.709	50—34	W.	—	20	59	2 22	23	9 34	73
14	Sun			SUNDAY IN LENT.	29.813—29.776	53—34	S.W.	70	18	vi	3 23	23	9 17	74
15	M			Laurel flowers.	29.748—29.687	46—29	N.	37	15	3	4 12	24	9 0	75
16	Tu			Ephemera Bistorta seen.	29.848—29.832	52—26	N.W.	—	13	4	4 53	25	8 43	76
17	W			St. PATRICK.	29.739—29.556	44—35	E.	30	11	6	5 25	26	8 25	77

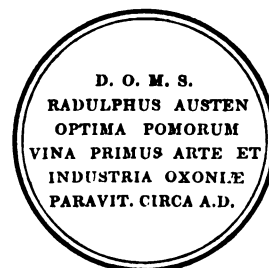
METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 50.9° and 34.5° respectively. The greatest heat, 67°, occurred on the 17th in 1836; and the lowest cold, 17° on the 17th in 1850. During the period 165 days were fine, and on 69 rain fell.

RIDICULOUS as was the excessive display in their religious exercises made by many of the Puritans of the seventeenth century, yet much allowance ought to be made, not only for the circumstances in which they were living, but still more for the fervid piety which actuated no inconsiderable portion of their number. We may justly deprecate the bad taste, and the worse judgment, which allowed whole sentences of scripture to be adopted as their baptismal names; we may with equal propriety condemn the blasphemy of inscribing cannon with such sentences as "Clear the way of the Lord;" and we may pity and pass aside the jargon of mis-applied scriptural quotations, which often disfigured and weighed down the literature of the age. All this is open to satire, and to graver reprehension, but let us not forget that to those Puritans we owe a debt of gratitude not to be effaced by our conviction of their follies and eccentricities. This is not the page on which to trace out the items of that debt minutely, but we will remind our readers of two of the most prominent. To the Puritans we are indebted for Bunyan's *Pilgrim's Progress*, and Austen's *Spiritual Use of an Orchard*. Of the first work we need say nothing, for it has been more read, passed through more numerous editions, and has been more frequently translated, than any other book, not from the pen of an inspired writer, but it is needful to say to many of our readers, that Austen's work, though much less known, is worthy to be placed upon the same shelf.

RALPH AUSTEN was a nurseryman and orchardist, resident at Oxford, but of far higher attainments and of education superior to those who then usually followed that business. That he was too excellent a man for even Anthony Wood to vituperate, is sufficient high praise, when we know that he was not a member of the episcopal church. "In the latter end of July, 1652," says old Anthony, "*Ralph Austen*, deputy registry to the visitors for William Woodhouse, and registry afterwards in his own right, was entered a student into the public library, to the end that he might find materials for the composition of a book which he was then meditating. That book afterwards he published in 1653, and entitled it *A Treatise of Fruit Trees, shewing the manner of grafting, planting, pruning, and ordering of them in all respects according to new and easy rules of experience*. It is very probable that the said book might have been printed more than twice (it was printed four times), had not the author added to it another treatise as big as the former, entitled *The Spiritual Use of an Orchard*, which being all divinity, and nothing therein of the practical part of gardening, many, therefore, did refuse to buy it. This Mr. Austen, who was either a Presbyterian or Independent, I know not whether, was a very useful man in his generation, and spent all his time in Oxford to his death, in planting gardens there, and near it, in grafting, inoculating, raising fruit-trees, &c. He was born in Staffordshire, and dying in his house in the parish of St. Peter-in-the-Bailey, in Oxford, was buried in the church belonging thereunto, in the aisle joining on the south side of the chancel, on the 26th of October, 1670, after he had been a practitioner in gardening and planting fruit-trees fifty years." We hoped to have found his resting place thus accurately specified by his biographer, but the church was rebuilt in 1726, and no memento of him remains. Our enquiries after the locality of his garden have been equally unavailing. In consulting the writings of his other contemporaries we have been more successful, and from them we find that to the third edition of his *Treatise*

on *Fruit Trees*, published in 1665, Austen also added *Notes on Lord Bacon's Observations and Experiments on Vegetables*. Nor did these comprise all his writings, for "now lately," says Anthony Lawrence, writing in 1677, "he published a new book, under this title—*A Dialogue between the Husbandman and Fruit Trees in his Nurseries, Orchards, and Gardens*. In which are discovered many useful and profitable observations and experiments in nature, in the ordering of fruit-trees; devoutly instructing good husbands to adorn their own country, and justly blaming idle and voluptuous prodigals as enemies to their own country. By *Ralph Austen*, practiser at least 50 years, in the art of planting fruit-trees. 1670. All from Oxford, and this plain writer, who pretends to no glory in rhetoric, both by his labours and experiments has done more good for Oxford, and thence for England, than is yet done by many gaudy gallants, who spend more in a day, than this honest nurseryman can spare in a year."

"In these respects we are obliged to attribute more to a laborious and skilful nurseryman in his homespun raiments of English manufacture, than to an idle prodigal, with his sumptuous equipage of exotic embroidery. In regard of Mr. Austen's merit towards Oxford and the public, a worthy friend hath devised a monument for him. It is in great Roman letters of gold, upon a black marble, the best touch; the figure round, agreeable to the roundness of this globe; the diameter three feet, both for modesty, and that the largeness of the letters may fill up the area."



(*Ralph Austen, by art and industry, first introduced the best wine of Apples to Oxford.*)

"It is so newly modern," adds Mr. Lawrence, "to raise cider to excel the wine of many provinces nearer to the sun, as to be generally thought incredible, yet it is certain Mr. Austen was busy at his experiments in preparing Redstreaks for Oxford, long before vulgar cider was to be gotten there for money. And he hath now very lately taken in twenty-seven acres of ground, to enlarge his former nurseries, and for new plantations." Austen was a florist as well as a fruitist; for Rea, in his *Flora* published in 1665, mentions an auricle raised by him, and another named after his wife.

The design, and it is most excellently wrought out, of *The Spiritual Use of an Orchard*, is thus told in the preface. "As I have planted many natural fruit-trees for the good of the commonwealth, so have I taken some spiritual cions or grafts from them (I mean several propositions drawn from observations in nature), and bound them up in a bundle, and sent them abroad for the good of the Church of God; and if men will accept of them, and be willing to engraft them in their own gardens (their hearts and minds), by the

husbandman's watering of them by his spirit, they will grow and blossom, and bear much good fruit here and for ever—Fruits of Faith, Love, Joy, Peace, and other fruits of the spirit."

We have space but for one extract:—"The husbandman is careful to engraft his trees while they are young. So God calls his people (for the most part) in youth. How seldom has it been seen that an old person turns to God, having

served Satan and his lusts all his youth. They being old engrafted trees, growing upon the stock of corrupt nature, its a thousand to one but they shall grow there, until the axe be laid unto their roots to cut them down, and they be cast into the fire, not to be consumed, but to burn for ever."

In 1847, a reprint of this most excellent volume was published by Mr. Pamplin.

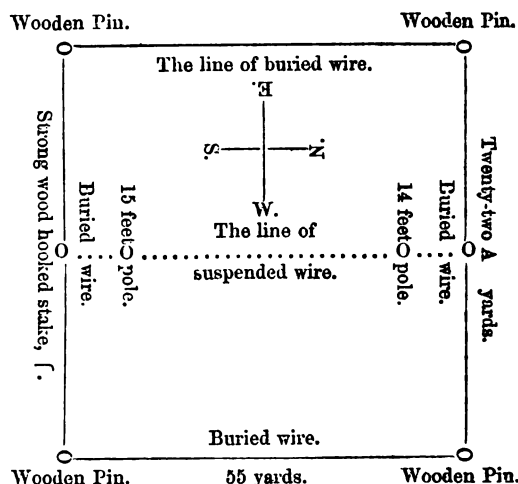
THE following letter from *A Window-Gardener*, has revived from our memory the almost-forgotten subject of the influence of Electricity on Vegetation:—

"I have a small propagation-box, in which I propagate geraniums, &c.; it is about two feet long, one foot wide, and six inches deep. It is covered with a glass shade, which rises about fifteen inches above the box which contains the soil. The glass shade is not fastened to the bottom box, but merely set on it, and can be lifted off at pleasure; there is also a door at the side of the shade, which can be opened to admit air, and pick off dead leaves, &c. As I am "a window-gardener," of course it stands in one of my windows fronting the south. Last autumn, near the end of September, I filled the box with cuttings of geraniums, verbenas, &c. About a fortnight since, my young plants or cuttings looking very sickly, and having by me one of *Pulvermacher's Hydro-electric Chains*, I thought I would try them with a dose of electricity; for if it is good for reviving and invigorating the animal system, why not the vegetable? Accordingly, I inserted a piece of copper wire, about three inches long, into the centre of each end of the box, letting the wire go about an inch-and-a-half into the soil, from which I suspended the chain by its hooks, letting it pass freely under the box, without coming in contact with anything. I passed the chain three times a-day through vinegar, as recommended for curative purposes; so when the chain is suspended from the wires in the ends of the box, there is a constant stream of electricity passing through the soil. Before a week was at an end, I marked a great change in the appearance of my plants; they turned to a fine healthy green, and had grown perceptibly. I also tried the electricity to plants in pots, with the same beneficial effect. Do you think it is the current of electricity constantly circulating through the soil, or is it the increasing length of the days and more sunshine which have caused the plants to grow, and has given them a fine healthy colour? A few years since, I remember seeing in some agricultural publications a great deal about applying electricity artificially to crops by various means, but having heard or seen nothing about it this long time, I thought it had all turned out a fallacy. I should like very much to hear your opinion on the subject in *THE COTTAGE GARDENER*."

As our correspondent did not have one pot of cuttings non-electrified, to compare with those subjected to such treatment, it is quite impossible to draw any more decisive conclusion from the experiment, than that the cuttings were not injured by the electricity. Our own opinion is, that the germination of seed, and the vigour of plants, is promoted by subjecting them to positive electricity; but the evidence, at present, is too conflicting for any one to be justified in forming a positive conclusion. It is a very interesting research, and we wish that some of our readers would undertake a series of experiments on the subject.

The application of atmospheric electricity to the roots of crops, alluded to by our correspondent, was one of the bubbles of 1845.

The following was the plan upon which it was arranged on a quarter-of-an-acre of ground:—



The mode in which the plot was laid out is as follows:—With a mariner's compass and measured lengths of common string, lay out the places for the wooden pins, to which the buried wire is attached (by passing through a small staple). Care must be taken to lay the length of the buried wire due north and south by compass, and the breadth due east and west. *This wire must be placed from two to three inches deep in the soil.* The lines of the buried wire are then completed. The suspended wire must be attached, and in contact with the buried wires at both of its ends. A wooden pin, with a staple, must therefore be driven in at A, and the two poles (one 14 feet and the other 15 feet), being placed by the compass due north and south, the wire is placed over them, and fastened to the wooden stake, but touching likewise, at this point, the buried wire. The suspended wire must not be drawn too tight, otherwise the wind will break it.

Many stories were told of the increased produce obtained by Dr. Forster and others, but in every instance where such increase seemed to have arisen, beyond all doubt there was some mistake or some fallacy. Guano had been sown within the magic square by some friend in the night, as we have heard being done in one instance.

The free electricity of the air is conducted in sufficient quantities by other conductors than the rods and wires in question; and that this is the case is now demonstrated by every well-regulated experiment which has come within our knowledge. Electro-culture, our readers may be assured, is a misnomer and a fallacy. That the galvanic or electrical fluid may be excited and applied with advantage to plants under certain circumstances, is another matter, but even this requires more evidence before it can be considered an horticultural agent.

FORSYTH MSS.

NEXT in alphabetical order occur the letters of Dr. JAMES ANDERSON, for a biography of whom we refer our readers to our 105th number. As we said then—

There are very few characters adorning the history of the present century from the contemplation of which we derive so much satisfaction. From boyhood to old age he was always in advance of his contemporaries, and as invariably did he rise to meet and to triumph over the adverse circumstances that encumbered his progress.

Of the periodical alluded to in the following letter we gave these particulars:—

In 1700 Dr. Anderson, for he had ten years before been raised to this degree by the College of Aberdeen, established in Edinburgh a weekly periodical called *The Bee*. Here again appears a demonstration how much he was in advance of his times, for in that period of quartos, and other dear forms of literature, rendering knowledge sealed against the many, he had upon his title page—"a work calculated to disseminate useful knowledge among all ranks of people, at a small price." Dr. Anderson was a noble example to those who preside over our periodical literature. Avoiding all the petty squabbings, because he was above the petty jealousies, which show that editors think more of their own piques than the instruction of their readers, his pages are free from all personalities; and yet, when the occasion arose, he stood forth boldly to guard the rights of all connected with the public press. He was the only one of Dr. Cullen's pupils who took notes of his lectures; and when these notes were unfairly obtained from him, he at once crushed the attempt to publish them, fearing, as he said, "that his imperfect transcripts might injure the fame of his master." Again, when a series of *Essays on the Political Progress of Great Britain* so far excited the displeasure of government that the Sheriff of Edinburgh was directed to discover their author, Dr. Anderson refused to betray from whose pen they proceeded,—to use his own words, "I am personally responsible for what I have published." The inquiry was abandoned; but subsequently, when the author of those *Essays*—a creature named Callender—had the malicious audacity to attribute them to Lord Gardenston, a judge of the Court of Session, Dr. Anderson at once held up Callender to public scorn by avowing the truth.

The work on wool-bearing animals, also noticed in the following letter, was published at Edinburgh in 1794, under the title of *An account of the different kinds of sheep found in the Russian dominions*.

DR. ANDERSON TO MR. FORSYTH.

Colfield, near Leith, 15th Nov., 1793.

Sir,—I have been much out of my duty to you in not having sooner made my acknowledgments for the honour you have done me in admitting me a member of the London Society of Natural History; but my time has been so entirely occupied for three years past, in publishing a periodical work here, called *The Bee*, that I have not been able to attend to other matters as I otherwise should have done. I have it not in my power, even now, to send any articles to the Society that would be worthy their attention, but I transmit along with this a part of a book I am now printing, on the Natural History of the Sheep, to the care of a son of mine, now in London, who will get it conveyed to you, and which, if after reading you think would be agreeable to the members of that Society, and if it is any part of your plan to have books in it, you will be so good as present in my name; but if unsuitable, I beg you will honour it with your own acceptance, at any rate, you will please to keep it till the whole be printed, and I shall take care to have the remainder of it transmitted to you. Perhaps my son, whose name is Alexander, will wait upon you himself when he goes to see the menagerie of the late Mr. John Hunter, which is, I think, in your neighbourhood; and I will take it as a favour, in case there be any difficulty in getting admittance to it, that you will be so kind as facilitate that, if it puts you to no trouble. Among the animals there kept is a *Thibet goat*, which I have desired my son to take a drawing of, as that is one of the articles I mean to introduce into the appendix.

I expect when this little volume is published it will contain a more complete natural and economical history of the sheep, and some other wool-bearing animals, than has ever yet been published. The first part of it was written by the celebrated Dr. Pallas, in Russia, and was translated and abridged from his Latin MS. by an obliging correspondent in St. Petersburg, who chooses to assume the name of *Arcticus*, the whole being revised by Dr. Pallas himself before it was transmitted to me. The notes that are subjoined for illustration are most of them by myself, and are principally intended to correct improprieties in regard to the economical management of that animal, which is an object that has attracted my attention for many years past. To that I have subjoined one appendix, containing observations

on what are called *varieties* of animals, which is fully printed off: this is appendix 1.

The 2nd will be observations on the effect of climate in altering the quality of wool: it is just begun to be printed.

The 3rd will be on the influence of saline and bitter pasturage upon sheep.

The 4th, remarks on the shawl wool of Thibet, containing a specification of the difference between the wool of sheep and of goats; for I have discovered that it is not the Thibet goat alone that yields that kind of soft, unelastic wool of which shawls are made, but that all the European goats yield it of the same quality, though in trifling quantity.

The 5th will be a catalogue *raisonné*, or what I would call a prospective catalogue of such wool-bearing animals as have not yet been introduced into Britain, but which might probably be introduced there with profit.

And the 6th and last, directions for choosing sheep or other animals that are to be brought from a distance to Britain, so as to obtain only the very best of each kind.

Such is the general plan of the work. It will be accompanied with three or four more plates. The two last essays I have just received back from Mr. Pennant, with his additions and corrections; but he cannot tell me where is to be found a very good drawing of the Louisiana Bison: Do you know of any?

I am, &c., JAMES ANDERSON.

FORMATION OF FRUIT AND KITCHEN-GARDENS.

In compliance with the wishes of some correspondents, we proceed to offer some practical advice on this head; albeit, other matters incidental to the season rapidly force themselves into notice.

Our correspondent, who seems to embody the demands of the majority, writes thus:—"You would greatly oblige some of your subscribers about to form new gardens, by giving a ground plan or description of a fruit and kitchen-garden of ordinary size; showing the arrangements of various kinds of fruit-trees on walls, as standards, and as espaliers, also vegetable-beds, borders, walks, &c."

Now, to go into a thorough detail on this subject would be, of course, to produce a goodly pamphlet, equal to some three or four COTTAGE GARDENERS. We must, therefore, rest content with chalking out the main features, leaving a little to exercise the mind of the reader; which, indeed, gives a zest to such procedures. As to ground plans, space will scarcely permit it, neither will such be required; the description will be sufficiently explicit to enable the veriest tyro to measure out the lines, positions, &c.

Size.—In order to steer a medium course between a large garden, and a very small one, let us suppose from one to one-and-a-half acre to be enclosed, and to illustrate the subject fully, let us also suppose that it has what is termed "slips," or at least two sides. The definition of a "slip" will fall in its proper place. To plot a larger one, would be to shoot over the heads of one-half of our readers, and is scarcely called for by the parties to whom it would be addressed. Of course the planning of cottage gardens belongs more to allotment matters, and will be dealt with in its proper place.

FORM.—Universal consent has been given in late years to rectangular forms. Curves of various kinds, pilasters or buttresses, forming what were beforehand presumed to be sheltered bays or niches, were at one period thought to be a step in advance, but after repeated trials they were abandoned for more simple lines. It was found amongst other evils that eddies or cool currents were induced. Opinions still vary amongst men equally eminent for a sound knowledge of the profession. We therefore give an opinion with deference. We should prefer a parallelogram, placed as near as may be to the cardinal points; and having the two lines of walling running north and south, one-third longer than those running east and west.

Our reasons are these:—We have, of late years, received a vast accession to our pears, plums, cherries, &c., whilst the peaches, nectarines, and vines, have scarcely received any addition. Now the latter, we all know, demand, in most parts of Britain, a south aspect, whilst three-fourths of the former are as good, or better from east to west aspects. In addition, no advance has been made worth recording in our north-wall fruits, hence we see that on a full consideration of the question, east and west aspects may fairly be multiplied at the cost of south and north; at least such we should say as far north as Birmingham, at least. It may here be observed, however, that we should not expect such arguments to reign *paramount*. In laying out new places, the locality must be well studied, the site of the mansion will not unfrequently, in some degree, dictate the site, form, and size of the kitchen and fruit gardens.

GENERAL ARRANGEMENT.—It is still customary to establish wall borders, and marginal borders; and these, with the walls back and front deducted, leave the whole interior totally unshaded for the production of superior vegetables. We know of no arrangement superior to this, which recommends itself on the joint score of convenience, simplicity, and true economy. The wall borders are generally appropriated to early crops, and, indeed, once the spade introduced, crops of all kinds are but too apt to find a place there. This we protest against, as also against any digging over the roots of fruit trees.

This brings us to the width of the wall border. It is customary to make this border nearly or quite as wide as the wall is high, but why this should have become a kind of rule it is not easy to say. As to seeing the trees to advantage, it is probable that about sixteen to twenty feet gives a superior effect. This, however, should be made a subordinate consideration; trees well managed, look well at any distance, and certainly in this department of gardening economy is before mere effect. We must, therefore, suggest eight feet as the maximum width, with the understanding that no vegetable culture takes place; nevertheless, we are prepared to concede a flower-border on the two feet next the walk, or the margin of this border. This margin, if decorated with flowers, might be furnished with the herbaceous and annual tribes; at any rate, things which could be transplanted any autumn without loss, in the event of operations connected with the trees becoming necessary. We must here confess, that under peculiar modes of surface culture, we crop such with the smaller vegetables, salads, &c., and without the least injury to the trees; but it is dangerous, we fear, to suggest such to the unpractised.

And now to the marginal borders: these are generally made to surround every quarter, or square, of the garden; and we would, in all cases where convenient, constitute four quarters, by two main walks at right angles, intersecting each other in the centre. If the plot to be devoted to fruit and vegetable culture is of an irregular form, let the largest rectangle be formed out of it, and with the opposite sides equal, and let the rest be thrown into slips, or devoted to ornamental planting, or indeed, what we should do in many cases, where economy of space is highly necessary, blend the useful and the sweet together.

The marginal borders with us, are about eight feet in width, and less would scarcely prove sufficient. Those who are severely limited for room must be content, we suppose, with six feet, less than which can by no means answer. If the trees are of the pyramidal character, root-pruned, and on dwarfing stocks, the latter width will be amply sufficient; if rough espaliers, as some call them, or, in other words, dwarf standards, eight feet is little enough, and even then root-pruning, if the soil is of a fertile character, must be had recourse to.

The distance between the trees must also be ruled, less or more, by similar circumstances; but in all cases it is well to leave much room between the trees this way, especially when they run north and south, as much of the valuable solar light is lost from eleven A.M. to one, when the trees are too close in this direction.

Nothing has yet been said as to the width of the walks. There are two phases under which to view this part of the question—the one, a necessary amount of breathing room; the other, proportion. For the former, some five feet will do; the latter, of course, must be determined by the general tone and size of the gardens, together with their pretensions. Some princely gardens of perhaps nearly half-a-score acres, possess, and very properly, we think, a central carriage drive through the midst; but then the sides of the drive are in proportion, and composed of strong features of a dignified yet systematic character.

SLIPS.—Wherever a kitchen-garden is chalked out, some fragments on the outer side come to hand, and those on the side of dress grounds not unfrequently partake of both characters. When next a road, a lane, or the farm buildings, they may preserve an identity of style with the interior, between walls. Slips are frequently liable to more trespass than the interior; they are, therefore, not the best places for the Greengages, Moorparcs, and Jargonelles. In general, late fruits are best adapted; such indeed as require housing awhile to render them palatable.

SITES for fruit trees and bushes.—As we have before stated in THE COTTAGE GARDENER, it is folly to deep trench, manure, &c., in common, the whole interior. This is all very proper for vegetable culture, but in order to economise expenses, the fruit-tree *stations* should receive a special preparation. Of what use is it to put in cart loads of turf where barrows-full will suffice. If the soil is of mediocre quality, and the general texture, in a mechanical point of view, is good, six barrows of prepared soil will do as well as six cart loads, for trees under a dwarfing system, and this alone is worthy of practice, within walls at least.

The *platform* mode of planting has been so frequently recommended and explained in previous numbers of this work, that neither space nor occasion require a repetition here. Those who do not possess the earlier numbers of THE COTTAGE GARDENER, will do well to add them to the horticultural division of their library; for not in one department alone, but in all those of our clever and eminently practical coadjutors, will these volumes be found to present a mass of sound information, which is seldom surpassed, and which will as seldom mislead.

A few matters only remain for observation. First, as to site: a steady incline to the south-east if possible—next, the south, and lastly the south-west, will be found highly eligible. In all cases, if a permanent supply of water can be obtained, we would establish a reservoir in the centre of the garden; and, as irrigation is a great essential to some crops, and especially to hot soils, the proprietor, about forming a new garden, has it in his power so to scheme his matters as that such may with facility be carried out, with regard to such things as strawberries, black-currants, raspberries, asparagus, &c. The whole being a parallelogram, vegetable cropping can be carried out with facility, precision, and without loss of time, which is always involved in the working of gardens, the lines of which are not right-angled.

As to selections of fruits by name, that alone will require some two or three columns of these pages: many such may be found in back numbers. In the vegetable department, a deep and friable soil should be selected or made; nothing insures the permanent welfare of a vegetable garden so much as depth of material. Without this, whether in the garden or the farm, a waste of manure is the sure consequence.

The general principles on which a selection of fruit trees should be made, are the requirements of the family, the extent of the aspects, and the garden generally. The wall-trees may be about seven feet six inches apart on an average, dwarf standards untrained, running east and west about sixteen feet, the same running north and south twenty-four feet, and pyramids about ten feet. For perpendicular and table trellises, the trees may be about twelve feet.

Vines, figs, peaches, nectarines, and apricots, must in the main be on the south aspects; nevertheless we have known apricots, especially the Shipley's, succeed to admiration on east or west, and sometimes figs. Where early desserts are required, there should always be one Duke cherry, and an early plum,—say River's favourite—on the south wall; and one Morello highly deserves a place there also.

The very best pears, and especially those which look tempting while growing, should be on the east and west in the interior, and of course all luscious plums, cherries, &c., and the slip must receive all the harder featured, later and hardier kinds, and some bush fruit.

R. ERRINGTON.

SEASONABLE SCRAPS.

ONCE upon a time I could take down two snipes, or two woodcocks, or even two swallows, with a double shot, but now if I were a patriot, as of course I am after a fashion, I need as much practice to hit a bull's eye as the youngest of them, and being very anxious to defend our good old constitution, I now go once or twice a month for this practice to our own rooms at 21, Regent-street, London, where we hit right and left as well as straight-forward.

I was there the other day, and who should I meet but Mr. Appleby himself, looking as much of a patriot as any of us. He had a most beautiful new evergreen tree there, called *Araucaria Cookii*, named long since by Dr. Brown, after Cook the great circumnavigator, who, as well as the naturalists on board his vessel, mistook the tops of this conifer for basaltic columns, on the south-east coast of New Caledonia. After that, however, they discovered their mistake, and Cook described the tree in his account of New Caledonia, "as an elevation like a tower;" and it appears now that the very tree thus described is still alive and healthy, looking "exactly like a well-proportioned factory chimney of great height," a fact recently asserted by Mr. Charles Moore, the able superintendent of the Botanic Garden at Sydney, who took a trip in 1850 among the islands of the South Pacific, looking out for new plants and seeds. To Mr. Moore's industry we are indebted for the first introduction into England of the very species which first puzzled our great sailor, and which, in gardening language, is to commemorate his name in that long list of eminent men who often perilled their lives to extend the boundaries of natural history. Mr. Moore sent over two plants of this beautiful *Araucaria*, together with drawings and dried specimens of the cones to the Horticultural Society last year, and Mr. Appleby was the first who brought a plant of it for us to see at our own rooms, but, strange to say, he had no prize for it. The fact is, we forget ourselves in these troublesome times, because the French President knows our rooms just as well as any of us, and may be he is as fond of new plants as we are, and perhaps will take it into his head to run over some "meeting," and clear the whole room of them; so if we were to spend all our money in prizes how could we buy rifles to defend our rooms in Regent-street.

Mr. Fish ought to have been there also to see a fine *Hybrid Begonia*, also shown by Mr. Appleby, and a still finer plant in his way, for this season, called *Selago distans*, from our own garden. Everybody who has a

greenhouse or a conservatory to keep gay in winter, ought to grow three or four specimens of this plant, which may be done in the course of one season, or in two at most. It belongs to the very small-leaved section, and every shoot ends in a close spike of small white blossoms. I have bedded out this plant, and two more of them, but I did not much like them that way, but that is no reason why they should not be *Fished** out for the greenhouse and conservatory?

I have always maintained that the older *Camellias* are as hardy as our Portugal laurels, because I found them so, but I set my face against them because the cold winds destroyed their flowers so soon; but one should not be too positive, for now I must eat my own words, and acknowledge that *Camellias* can be flowered with impunity out of doors: for at this meeting we had a large box of the flowers of the old variegated, from an open wall in Hampshire, in the garden of the Rev. Mr. Beadon, of North Stoneham, and they were very much admired; few gardeners could pack these flowers so well; at all times they are ticklish things to pack, because the least touch of anything will damage them, but there was not a spot on these.

We had a very interesting collection of cut flowers from one of our members, the Hon. W. S. Strangways, of Abbotsbury, in Dorsetshire, the gentleman after whose name *Stranthesia glaucescens* is called. The best of these for the flower-borders early in the spring was a *Saxifrage* from the north of India, and called *Saxifraga citosa*; it blooms in large spikes, just like the old broad-leaved one called *cordifolia*, but the flowers are more pinky and altogether finer. It is very well worth asking after. There was an extremely rare plant in this collection which I never saw or even heard of before, and no one in the room knew the name of it except Dr. Lindley and Mr. Strangways; the name is *Azara integrifolia*. The shoots were small, and the leaves not unlike those of the *Correa speciosa*, but growing much closer together. The flowers are yellow, small, and in tufts along the underside of the young wood. It is a native of Concepcion, and we have another species called *dentata*, from the south of Chili. This last plant was against a wall in the Society's garden some years ago, and perhaps is there yet; and very likely this *integrifolia* would live out about London in the same way: if so it would be useful for cut flowers in the winter.

A much better winter plant than the last, from the south of Europe, and called *Lithospermum rosmarinifolium*, took my fancy very much. It is a Boragewort, and looks like a sprig of rosemary, with the flower of a deep blue Forget-me-not; and from the way these Borageworts flower on coiled spikes, I have no doubt this plant would go on flowering for three weeks, if a sprig of it were cut for filling up a glass of mixed cut flowers in the drawing room. The *Fuchsia splendens* in the same collection looked as fresh and vigorous and as full of bloom as if it were Midsummer; there was an *Edwardsia* in this lot that I never saw before, and several other plants which require no more notice.

Mr. Epps, the great Maidstone nurseryman, had a couple of cut spikes of a sweet-scented and curious new plant from China called *Edgeworthia chrysantha*. You would just take it for a spike of pale yellow Daphne; it was among the first which Mr. Fortune sent home. Mr. Fortune was at the rooms the same day, but he did not think his *Edgeworthia* was improved by our dull climate. In Chuzan, he says, it is a bright yellow, flowering in July, so I suppose Mr. Epps forced this plant and a good addition it will make to early forced flowers, though at the expense of the colour.

Mr. Appleby could not keep his eyes, like a fond parent, off lots of beautiful *Orchids* from Mrs. Lawrence,

* Mr. Fish says that D. B. will always *Be-at-one*.

and the garden of the society; but the best plant in the room, and the best in England, while it lasts, was the *Amherstia nobilis*, in the shape of a bunch of cut-flowers. I thought once I should never forgive Mrs. Lawrence for this very plant. Lord Hardinge sent it and three or four more from India; one was for Her Majesty, one for Mrs. Lawrence, one for somebody else, and one for Shrubland Park. The case happened to be landed "just when there was nobody in London," and seeing the town was out, and knowing the value of the things, and that Mrs. Lawrence was the best gardener in England, they sent the whole lot down to Ealing Park, and, as luck would have it, Mrs. Lawrence's own plant was the best of the lot, at least they say so. Her Majesty's plant was alive, and the rest happened to be as dead as a hammer. But now I am quite satisfied, and all this happened for the best; none of us could manage this charming plant half so well. I went to Ealing Park on purpose to see it. I saw it fifteen years before in Dr. Wallich's large work on the rare plants of India, and last summer I saw it in the Crystal Palace done in wax, but I never saw the living gems till that meeting-day.

As a curious coincidence, there was another beautiful plant in the same collection, about which I was once hoodwinked. It was a fine strong plant of *Ansellia Africana*, an orchid from Fernando Po, which was brought home by Mr. Ansell, the young naturalist, who accompanied the ill-fated Niger expedition. I think it was only a dry specimen or a drawing. However there was some account of it given in the Botanical Register, and Clarence Cove given as the spot where it was seen. The moment I read this I wrote to a Naval officer commanding a vessel (the Thunderbolt) cruising in those latitudes against the slave traffic, and of course I thought I should be among the first to possess *Ansellia*, but no, the Thunderbolt was far off round the Cape in the Mozambique Channel, and she never saw Fernando Po from that day to this, nor I the *Ansellia* till I saw it in company with the *Amherstia*.

On my way home, I poked my nose over the fence of every cottage garden I saw, but did not see anything very remarkable except one very old plant—an excellent spring bedder, that I have not seen for years, but which everybody ought to have; it is what they call in the nurseries *Arabis grandiflora*, but the book name for it is *albida* or *caucasica*, being a native of the Caucasus. In one garden, I saw five large patches of it, at least four feet in diameter each, and as full of bright white flowers as you could stick pins in a pincushion. Every patch would make a nice little bed, and it keeps in flower at least five weeks, and is not more than two or three inches high. It delights in very light sandy soil, and would make an excellent rock plant. Also, if it were taken up in September, well divided, and planted thick in any out-of-the-way place till the bedding plants were housed, or frosted, and the beds put into trim for the winter, then removed to the flower-garden, and planted quite thick, I have no doubt it would continue in bloom till it was time to plant out the verbenas, when it might be removed out of the way again, to be nursed and cared for another year. I would also have large patches of it, without disturbing, where it could be seen from the windows, for coming earlier into bloom. Mr. Jackson, junr., who was at the rooms in Regent-street the same day, told me he had lots of it on sale at Kingston, Surrey, and that it was very generally cultivated thereabouts.

Every gardener with whom I get into conversation, tells me that *bedding out plants* never kept better than they have this mild winter, and they agree with me, that all those geraniums which go too much into leaf, or are shy to bloom, are much better the older they are, that is within reasonable bounds. Your five or six years old plants give up their luxurious habits and bloom as freely

as *Tom Thumb*. Among the first on this list is the beautiful *Unique*. It is seldom up to the mark until it is three years old, and old plants of it should be very close pruned about this time, and cuttings made of all the young tops. Those who keep old geraniums of any kind over the winter, with a view of making cuttings from the early growth, ought to preserve the old plants also, as if they are not all wanted to fill the centres of the beds, they make the best furnishing for vases, baskets, or for planting singly on the grass.

All *Fuchsias* for beds flower better, and look more healthy, if they are now or very soon cut down close to the ground, whether in pots or the borders. By the bye, an excellent practical gardener who takes most of the fuchsia prizes at Norwich, told me last autumn that the only secret of his success is that he grows his plants different from everybody else. He prefers from three to five years old plants, and about the middle of March he prunes away every vestige of the last year's growth; so that the old stems look as bare as a walking-stick; he then allows them to break afresh without any forcing, thus the young shoots, and forces gently, or keeps them back, according to the time he wants them to be in their prime for the different shows. I have done the same thing with *Riccartonii* on the walls, to keep them from encroaching too much on their neighbours, and I never saw a finer bloom. The grape vine bears the same kind of pruning on some soils, but is fatal to it on most soils; but all *Fuchsias*, *Clematis*, *Passion flower*, *Cobaea*, *Eccremocarpus*, *Maurandya*, *Lophospermum*, *Solanum*, and indeed all those climbers which flower on the current season's growth do better if they are closely pruned in March. Seeds of these, and of the *Canary plants*, and all the mixtures of the *Convolvulus Major* tribe, with a small sample of all the half-hardy annuals, should be sown immediately. The beginning of April will be time for the great bulk of bedding seeds.

D. BEATON.

OLD FUCHSIAS.

"THESE forced too much under the dark stage of a greenhouse, have put out unripe shoots from two to six inches in length—will they ripen, or should the shoots be removed, &c.?" A short time ago there were a few notes on *Fuchsias*, and such as were deemed suitable for such a case as the present. It seems, however, they did not exactly meet it. I give the state of these old *Fuchsias* thus prominently here, because such a mode of treatment, with the exception of allowing them to push in the dark to any extent, is the very best for securing dense masses of early bloom from all the small-leaved varieties, that have more of the blood of the old *Globosa* in their foliage, than that of the large-leaved *Fulgens*. At one time I used to pay *Fuchsias* very marked attention, and with this large group I never satisfied myself so well by any other mode. The plants stood in any out-of-the-way place in winter, until they broke from half-an-inch to two inches—had then the points of the old shoots, and any dead parts, nipped off—a part of the old soil removed, the remaining ball dipped in a pail of water at 80°, allowed to drain, and then potted in rich open loam, kept in the shade for a few days, and then placed in light in the conservatory. The young shoots were thus very numerous, rather stubby in their growth, and smothered with bloom. If the shoots have, therefore, come thick enough, all our correspondent has to do, is either to top-dress or shift his plants, and expose them to light, but gradually at first. Shoots even six inches in length will soon become consolidated enough, if they have got any substance at all; if very thin and wiry, and plenty more breaking, they had better be removed, as then the shoots will be more equal. This group of *Fuchsias* is the best for all purposes, and espe-

cially for the window, as great masses of bloom, under this treatment, can be obtained in little space. Small foliage, combined with plenty of fine flowers, is thus always a recommendation. The qualities of a good flower have already been described by the best authority. By such a mode of treatment, a great quantity of young shoots having started before the plants are either shifted or top-dressed, the strength of the fresh compost and manure waterings is thrown into the producing of continuous bloom rather than abundance of large foliage.

This mode will not answer so well with the stronger-growing, larger-leaved varieties, which produce their bloom chiefly at the points of strong shoots. It seldom happens that the wood is ripened the previous season to the very points, and even if tolerably hard the buds for a space back from the point are imperfect. Besides, where the wood is fully ripened, the buds have not a tendency to break so regularly as in the small-leaved sorts, but the extreme part of the ripened shoots sets out a strong young one or two, leaving a space towards the main stem bare. On these various accounts, therefore, it is advisable to prune back all the shoots of last season to a bud or two, as soon as fresh vegetation commences. The energies of the plant are thus directed into fewer channels, and more vigorous growth is the consequence. Stunted growth in this division will yield you few and stunted blooms.

Training Fuchsias.—For the above mode of management, and, indeed, for every other, we prefer the training the plants to a single main stem. There is no other mode so suitable for a young plant. As the plant gains in height, lateral shoots will continue to be produced, those nearest the pot being the largest, giving the plant a pyramidal appearance. To maintain the same character in the second season, and onwards, these shoots next the pot must be left longest at future prunings. Without considerable trouble perfect symmetry is seldom maintained after three or four years, but this is a matter of no moment, as young plants are so easily raised. Any young shoots taken off, for a month to come, close to the stem, and from two to four inches in length, and placed in a gentle hotbed, will make nice autumn-flowering plants. If they do not show a disposition to branch out early, stopping the main shoot will cause them to do so. By this single-stem system not more than a single supporting stick is necessary. The lower branches may require tying down to the rim of the pot, having previously put a cord or wire round for the purpose; and other shoots may generally be kept in their desired position by suspending them with thread between other branches and the main stem—thus a faggot of sticks is got rid of. When kept for several years, the stem will be strong enough of itself, if not too lofty. I have tried some, grown like standard roses, training the plants to one stem, first nipping in, and then altogether removing, the laterals, and also all the buds, except a few near the summit, unless the plants have a pendulous habit. I cannot say that there is much to boast about in this mode of treatment, any more than there is in standard roses in general; but the novelty of the thing would please some, and variety is always pleasing, if not in very bad taste.

I mentioned the other week how, when old plants become ragged in their outline, they should be cut down, and treated much in the same way as those grown out-of-doors. These may be trained to one stem, or half-a-dozen, or more, according as they break, and the wish and taste of the owner. By the latter mode, by placing the strongest stem in the centre, and the others outside of the pot, fine bushes may be formed. Each stem should have a supporting stick, and no more should be used. Bloom must not be expected from these plants so early as from old plants not cut down.

Circumstances best fitted for the growth of Fuchsias.—

Rapid growth may be effected after this period, by plunging the pots in a hotbed, of a medium temperature of 75° to 80°; root-action is thus made active. Some of the best plants I have seen were thus plunged for several months in a bed, in a span-roofed house,—medium top temperature 50° to 55°, and from 10° to 15° rise for sunshine, with air on night and day, and no shading during the latter. The stimulus given to extension by heat, was counteracted by light and air. Strong vigorous growth was thus associated with short-jointed, highly-elaborated wood. Attempt such a mode of growth under the shade of something else, and in a close, moist atmosphere, and you will be rewarded with long-jointed, flexible shoots, the blooming of which will be sure to disappoint you. Unless in such favourable circumstances as those indicated, it will be best to dispense altogether with an exciting high temperature. That which will suit the generality of plants in the greenhouse, will also suit them; only, after breaking and potting, they may be placed closely together, and kept warmer and moister than the generality of the plants, and also more shaded, placing them more apart, and in more and more direct sunlight as growth progresses. Everything about potting these beauties has been already referred to. In addition to manure waterings, they will stand several top-dressings during the season. The best I have found for them, was a sprinkling of super-phosphate of lime—the next best, a mixture of dried cow and sheep-dung. We fear that at this time of THE COTTAGE GARDENER, some early subscribers will judge these remarks uncalled-for; but I would urge, as an apology, the wish that every little thing should be understood about these lovely plants, so fitted to give a charm to the peasant's cottage, as well as the lady's boudoir.

R. FISH.

PROPAGATION OF EXOTIC ORCHIDS.

(Continued from page 335.)

CIRRHEA.—This genus grows so freely, that to increase the plants nothing more is needed than to divide them into two or more divisions; pot them, and subject them to the same routine of treatment as if they had not been divided at all.

CIRRHOPETALUM.—Increased in the same manner as *Barkeria*; which see.

CÆLOGYNE.—Cut off two or three back bulbs, fix them on a block with moss attached; syringe gently, and pot them the second year.

COMPARETTIA.—The plants of this genus are very scarce, being difficult to propagate. The rhizoma is so small, that if it is divided, the back bulbs are almost sure to perish. The only way to succeed is to treat them as directed for the small *Cattleyas*.

CORYANTHES.—The incipient buds of this genus are very apt to perish if more than a year old, therefore, to increase the plants, it is necessary to take off a pseudo-bulb next to the one pushing forth a shoot. Divide the rhizoma exactly between the bulbs, and pot them in the same compost as the established plants. Give no water till the buds break, and then only round the edges of the pot, till fresh roots appear, then water more freely, and afterwards treat them like the established plants.

CYCNOCHES being similar in habit to the *Catasetums*, they may be increased by the same method. (See *Catasetum*.)

CYMBIDIUM.—This genus generally grows strongly, and produces vigorous side-shoots. To increase them, take off a shoot with living roots attached to it, pot, and treat these divisions the same as the old plants. They are not difficult to manage.

CYPRIPEDIUM.—This genus consists of plants of an herbaceous evergreen character. They send forth side-shoots pretty freely, and as soon as these show roots,

cut one or more off. Pot in small pots, and water moderately at first, till the roots advance in growth, when more may be given, but they should never be kept very wet.

CYRTOPODIUMS are increased in the same way as *Catasetums* (which see). They will grow much more freely if plunged in a gently-heated bed of tanner's bark.

DENDROBIUM.—This is another very large genus. In it are plants that increase readily by side-shoots towards the top of the long pseudo-bulbs. These should be cut off with part of the stem of the old bulb, and be laid to dry for a short time; then put three or four in a pot, water very moderately till they begin to grow afresh, and afterwards treat them exactly like the old plants. They quickly make fine flowering specimens. *D. calceolaria*, *D. nobile*, and their allies, are easily propagated by these means. There are, however, several species that do not push forth young shoots on the old pseudo-bulbs, such for instance, as *D. albo sanguineum*, *D. amplum*, *D. Cambridgeanum*, *D. formosum*, *D. anosum*, *D. speciosum*, and others. All these must be increased by division. It is safer to place the back bulbs that are taken off upon blocks at first, till they have made their first growth, adding a little green moss as soon as they begin to push forth shoots and roots; then, when the newly-made pseudo-bulbs are perfected, and have had a season of rest, pot them and treat them like the established plants.

EPIDENDRUM.—Also a large genus; easily propagated by taking off two of the back pseudo-bulbs, placing them upon blocks without moss till they have made their first new pseudo-bulbs, then pot them, and treat them in the usual way. Two, *E. bicornutum* and *E. vitellianum*, are rather difficult to increase, but they are the most beautiful of the whole genus. To increase these, follow the same method as that described for the small, rare *Cuttleyas*.

T. APPLEBY.

(To be continued.)

ON THE SHOWING OF DAHLIAS.

As in some of the localities where this splendid flower is shown, the gentlemen, and many of their gardeners, wonder how it is that their flowers make such a poor figure by the side of some from the dealers, it may be well to apprise them that the growing of them in the ordinary way, and in gardens where they are to be ornamental, is but one step out of three that are necessary to the production of flowers according to the present taste. The cutting of the plants into half-skeletons, that the few flowers produced may be larger, is but another; but the most important is the manufacture of the flower after it is grown. Every petal, in some instances, and a great many in all cases, is coaxed more open by means of a pointed dresser, something like the end of a vent-peg, which is gently pressed into even a quilled petal, and there wriggled about to form the mouth wider, and pressed down all round the sunk middle, that it may be less sunk; and a dexterous person, by these means, will make a strange alteration for the better in a flower scarcely showable, or not showable at all as it would grow with a gentleman. Seedlings so mauled have been exhibited in such condition as to take general attention, and, when bought and grown, to give general disgust. We know of no way to prevent this ingenious manipulation, unless the judges will examine very minutely, to see the bruised and split petals. But as none but cupped petals will bear this mechanical improvement, those who rely on disguising flowers will never willingly encourage a reflexed flower. *Princess Radzville*, which everybody is obliged to show if he can, was unpopular among flower-dressers on that account. The *Dahlia King* is just such a flower, but another colour, and an improvement; and although it could win among crimsons, and even come in first of its class in Lancashire, where people show flowers as they grow, some of the best flower disguisers will not even insert it in their catalogues. If by this they fancy they can so far carry their point against reflexed flowers as

to monopolise the field for those that will bear manufacturing into good shapes, they will find that the trade will be much more damaged by the attempt to put down reflexed flowers than the flowers themselves. Nobody in his senses (if he admits the propriety of the tests now universally applied in the properties of flowers) will attempt to dispute that an honest cupped flower, with its centre well up, will beat a reflexed one, but this has yet to be obtained; accident sometimes produces a centre well up in a flower not generally so, but very seldom; nearly all are, more or less, sunk, or kept until the opening centre is a jumble of upright petals. As, however, the *Dahlia King* gives a good outline, a perfect centre, abundance of close petals symmetrically disposed, without any trickery or management, and wants nothing but good growing, and, moreover, as its healthy increase has placed it among the most plentiful and cheap of last year's flowers, we recommend everybody, showers or not showers, to grow at least a plant, and after fairly trying it point by point with any other dahlia, to candidly confess whether it is better or worse than *Princess Radzville* as a reflexed flower, and whether he can find any one in his collection with a better centre, a more symmetrically disposed face, a better outline, or a more perfect form, as two-thirds of a ball. But those who can change a cupped flower not worth twopence into one fit to show, by patience and perseverance in opening petals which never will open of themselves, hate the *Dahlia King* as they did *Princess Radzville*, because they cannot be improved by dressing. Let the judges do their duty in turning out bruised and split petals, and let societies avoid appointing manufacturing florists as judges; let genuine taste for compactness and form take the place of coarseness and size, and hundreds of gentlemen who will not condescend to do anything that changes the flower after it is grown, will not only grow dahlias, but will also enter the lists. But now all the chief winners at the great shows win by arts which are as disreputable to the florist, as the plating of an article to pass for silver would be to a jeweller. Custom has made the offence venial, but it is nothing more nor less than disguising a flower not worth growing to make it sell for a good one, whereas the buyer can never produce it as he saw it when he gave his order or made his note.

To enable us to show a good variety, a stand of dahlias ought to be of three sizes; the back large, the second row medium, and the front row smallest; and we hope societies will see the necessity of appointing amateurs and gentlemen gardeners for judges, for they will not be interested in continuing a taste which throws the prizes, as well as the trade, into wrong hands.

AURICULA SEEDS (*Apex*).—We will try a few; but we have several times devoted a frame to seed presented to us, and never obtained a reasonably good one. The bloom sent is the old *Cheshire Hero*, long since discarded from good collections.

FORCED ROSES (*R. T.*).—*Geant des Batailles*. There is no doubt of its being true, but you must not expect the brilliancy in moist heat. The other is *Crimson Perpetual*, *alias* Lee's *Perpetual*, *alias* *Rose du Roi*. The blind shoots have been caused by too sudden a change from cold to heat; it is not the dealer's fault. *Wilkinson*, of Ealing, has dormant buds.

ROSES (*W. S.*).—If the rose plants in pots will not support themselves now, what will they do with the flowers on? They must be propped, and tied, and suspended, and then, if we happen to be judge, they will be excluded; grow everything naturally, and do not depend on artificial training. The *Cineraria* is noticed among these flowers.

CINERARIAS (*U. S.*).—All but one, common border flowers, gay, but good-for-nothing. A 16, more likely to become useful, but we must see a truss before we can say much. The old ones are *Queen of England*, and *Mademoiselle Sontag*. (*Mr. Smith*).—A good score years behind the floral world, nothing worth a place, the raiser should throw every one he has away, and order half-a-dozen of the best from London, with seedlings from them, he might do some good. (*M. D., Hull*).—No. 1,

too like *Ivoryana*, and hardly so good; No. 2, worthless; No. 3, worth trying to grow, but at present too small, the semi-double one no use. (*H. P., Devon*).—Let us see a side truss of Nos. 4 and 9 when well out in flower. The rest are of no use.

GERANIUMS (*Peachy, Hampton*).—Very well for bedding-out, but we have many as good. The lighter colour is merely the same. *Tom Thumb*, where it is in flower now, is not so dark as it will be in its season. *Beauty of St. John's Wood*, although a little frilled, is a brilliant fancy flower, and will pretty well beat them all for bedding-out. We noticed it the season before last, when the Surrey people refused it a certificate. (*X L.*).—Several seedling scarlets, the one with a very distinct and darkly marked horse-shoe leaf, is new and good.

CAMELLIA JAPONICA.—There are too many reach us every week of an indifferent quality, to indicate much painstaking in the saving of seed. Although we admit that good ones have been raised from the seed of single flowers, it is going back half-a-century to depend on them for any thing but stocks. A. owns he has had nothing better than those lakes sent, and there is not one that we would grow. Pinchard seed from abroad is likely to be from single kinds. Sow now in heat, and as they grow, lower the temperature gradually, so that you may, after three or four shifts, stand them out of doors. (*Annie S.*).—The names of those sent, are *Fimbriata alba*, *Eximia*, *Imbricata*, and *Colvillii striata*, but they are too small to be in good health.

GREEN'S SCARLET KING is not, as *Alice* supposes, a reflexed flower, but cupped, full-faced, very round, and all of a colour. It may be ordered at any London seed-shop between Whitechapel Church and Charing-cross. *Bob* is a red; *Dr. Frampton* a lovely light flower; and *Sir F. Thesiger* a rose. G. GLENNY.

THE ROSE.

"Is the Rose a florists' flower?" some of our readers may exclaim, "we thought it was a shrub, and had no idea that a shrub or tree could with any propriety be called a florists' flower." It is, nevertheless, quite true. *Any flower that has been hybridized, and thereby improved in form, colour, and size, is a florists' flower.* Taking this as a settled rule, no one can deny that the Rose comes under the definition; it has been improved in form, colour, and size, and to as great an extent as any flower known—perhaps more so. That it has reached the acme of perfection in all its properties can hardly be allowed, because new and improved varieties in one or more points are constantly being produced. It is in this particular that one grower, by producing newer and better kinds, and by growing to higher perfection the varieties already known, surpasses his competitors at the exhibitions. This holds good with all other florists' flowers, or there would be no competition. If a rose possessed every desirable quality in the greatest perfection, and always came perfect, there would be no credit in growing it, and, consequently, no judgment would be called for when it was exhibited, neither would it be considered worthy of a prize. It is this want of perfection that incites the industry of man in every art to attain it, and happy it is that such is the case. There is a principle infused into the mind of man by an all-wise power, to strive after, and long for, perfection. This principle spurs him on to be active and industrious, and to exert all his power to reach that point. Hence the farmer strives to improve, and if possible, bring to perfection, his cattle, his grain, and his roots. The gardener studies to improve his fruit and his vegetables, and the florist is equally active and industrious to bring to perfection the objects his particular turn of mind has led him to adopt for that purpose. With these few pre-

liminary remarks, we now proceed to detail the culture of the rose as a florists' flower. Its culture may be divided conveniently into the following sections:—

1.—Situation of the rose garden, including shelter and draining. 2.—Soil. 3.—Planting. 4.—Budding and pruning. 5.—Winter management. 6.—Summer management. 7.—In pots for exhibition. 8.—Exhibiting as cut flowers and in pots. 9.—Insects and diseases. 10.—Raising new varieties from seed.

1. *Situation of the Rose-Garden*.—Our readers will please to bear in mind that we write expressly on the culture of the Rose as a florists' flower, throughout the whole of this essay; that is, for purposes of exhibition only, and this consideration will influence the choice of the situation to grow them in. Any place will not answer the desired end. It should not be low and damp, for then the late frosts of spring will injure the young tender shoots; neither should it be high, for then the strong winds will break the young shoots, and destroy, in a great measure, the beauty of the blossoms. An elevation of fifty or a hundred feet above the level of a river of a low, flat valley, will be a suitable site. The aspect should, if possible, be south-east, and the garden should be sheltered by a lofty hedge of some shrub or other. The best for this purpose is the hardy evergreen holly, but this shrub is slow of growth, and, therefore, some quicker growing one should be selected, if time is an object. The common *Arbor Vitæ* makes an excellent shelter, and where the expense is not considered, this shrub may be had from the nurseries, six or eight feet high at once, and thus form a shelter immediately. The beech or the hornbeam also form excellent shelters for the rose-garden, and may also be had of a good sufficient height at once.

The hedge on the north-west side should be the highest, and may be allowed to reach ten feet, but the hedge on the south-east side should not be allowed to rise more than four feet. The first will shelter the roses from the strong winds that generally blow from that quarter, and the latter being kept low, will admit the sun to shine upon the ground, and allow a sufficient gentle breeze to ventilate the air, and prevent moss or lichens from growing upon the stems and branches.

The shape of the garden may safely be left to the taste of the cultivator; but the best, we opine, is a parallelogram, about forty feet wide, and as long as may be convenient to hold the proposed collection. A good gravel walk should be formed down the centre, and if the ground requires draining, it should be done effectually. A main deep drain may be formed down the centre of the walk, and cross drains laid across the borders into it.

In such a situation so sheltered and drained, the rose will grow well, provided the soil is suitable, which will be treated upon in our next. T. APPLEYBY.

MELON CULTURE.

(Continued from page 359.)

WE some time ago recommended the various kinds of melon seeds to be sown in pots, plunged in some heating material, sweet, wholesome, and, to a certain extent, moist, as a dry heat would rob the delicate seed-lobes of more of their juices than they could spare, and a sickly growth, or premature death, would be the result; yet such moisture must not, by any means, amount to "steam," as complete saturation would be equally fatal, though in another way. It would be very difficult for most practical gardeners to describe what this "fine sweet heat" is, yet all know it by simply once inhaling it; and the tyro who once tasted it would probably have as perfect a knowledge of it as he who partakes of it daily. Without attempting the descrip-

tion, we will suppose the seeds sown in pots, and the pots plunged in the bed, the internal heat of which should never exceed blood heat, while the atmospheric warmth may be less. The glass ought also to be scrupulously clean, as likewise the interior of the frame, the pots, and everything else calculated to insure a healthy, vigorous growth. We have before stated that good turfy loam, from what is usually called good "wheat lands," is the best to grow this fruit in; but a finer description is often allowed them while in a preparatory state, *i.e.*, in pots; therefore, when your seedlings have just shown their first rough leaf, let them be potted in pairs, labelled, and replunged, as directed for young cucumber plants at page 243; and we shall suppose them to have progressed so favourably as to be ready for final planting out, which we now enter upon.

Previously to the last ten or fifteen years, melons were almost uniformly grown on a fermenting bed of dung or tan, and the vine allowed to rest on the ground; since then trellises have become more common, and hot water and other modes of heating have been also put in requisition, so that a variety of methods are now in use with varied success, and where very early, or very late, fruit is wanted, fire heat, in some shape or other, is indispensable; and trellises are likewise of great use, in the same way, as tending to check those decaying influences a too close contact with the earth induces. Another very important benefit attending them, is the chance there is of syringing the leaves from below, and thereby keeping in check that pest to the melon, the red spider. This point is one of which we shall speak hereafter; suffice it now to say that we approve of trellises generally, but must make our directions available to all. We shall first begin with that still useful appendage to the "forcing gardener," the dung-bed.

Most likely before these pages reach the reader, some of our crack forcing men will have their crops of melons running over the hills, and showing fruit—to such we have little to say; rather let us direct the amateur to the making of this bed, and, in the first place, we will suppose him to have some well-prepared dung, which being built up four feet high, and made moderately firm, the frame and lights may be put on. We are aware that in thus summarily recommending a plain bed, we are departing from the rule many have of building up a sort of a flue, or hollow chamber of rough stones, under each light; the object of this ventilator is to counteract any extra amount of heat the bed may be charged with, and it sometimes serves a useful purpose that way, as no burning or scalding of the soil takes place. While it is in working order, the hill being immediately over it, is not liable to those fluctuations which sometimes proves fatal to the common way, but on the other hand, the sinking or receding of the dung-bed leaves this in an elevated position, and as that sinking continues after the plants are expected to occupy the whole bed, we have seen sad fractures of the roots in consequence. This latter case is more manifest, when in place of a pillar of loose rough stones a rough faggot is used. This unyielding object is very objectionable; we therefore prefer the bed to be plain and solid, and depend on the previous preparation of the dung, and the after attention, for counteracting all over-heating properties.

We may observe that for early forcing, a dung-pan raised on a framework of rough timbers, and heated solely by lining, presents many advantages, not the least being the partial command of heat we are expected to have over it; but then the application of linings must be well attended to, and that involves a labour not always at command, in March and April. Besides, in these months the increased and increasing amount of solar heat is such as is likely to serve the purpose required, when that of the plain-made-up bed

has subsided; or a simple addition of lining will do. But we will suppose the bed made, the heat all that could be wished for, and some of the soil mentioned last week as being suitable for the melon, in a tolerably dry state, ready for use; our purpose is now to begin to put it in, which after making the bed even inside, is done to the extent of about three inches thick all over, and a ridge or billock under the centre of each light, or if the lights are more than six feet long by four wide, we have sometimes made two hills in a light, for small-growing kinds, as the old Green Egyptian; but in a usual way, one hill to a light will be sufficient, the hills ought to be at least fifteen inches high, and for strong-growing kinds, as some of the Scarlet-fleshed varieties, eighteen will not be too much. After getting it in, let it stand a day or two, to warm properly, and after examining the heat, and satisfying yourself from its kindly disposition, that no mischief is to be apprehended, you may turn out your plants, which by this time, we suppose to have three or more rough leaves, with the cotyledons (or seed lobes) still adhering. But little water will be needed at first, unless the weather be bright, but air in moderate quantities must be admitted, but that must be done with extreme caution, as sudden currents of a cold north-east wind would be next to fatal to a plant so delicate, while the pernicious effects of the east wind are almost equally so; therefore, in giving air, limit the orifice to no more than is just sufficient to enable the heated or vitiated portion to escape, with the smallest possible influx of that from the open air. This stinted mode of giving air will not do when the interior is filled with steam, nor yet in bright sunshine; in the latter case, a more liberal amount may be admitted, and in the case of steam arising to an undue degree, a small outlet must be provided for its escape at all times, only taking care such outlet is no larger than necessary; and if something in the shape of warp netting, or other open substance, was hung before it, so as partially to diffuse and soften the cold air before it entered the frame to replace that driven out, so much the better, but as we have recommended undue moisture to be guarded against by the proper preparation of the dung, no great influx of steam need be apprehended, unless the weather be moist and mild. However, all these matters in detail are necessary to be observed, otherwise success cannot be looked for.

All these provisions made and attended to, the amateur must also remember the frame must be covered up every night, and uncovered in the morning again. Now, this is a tiresome job if left to unwilling hands, but it must be done, and we wish we could recommend him the best material for the purpose, as we, like our worthy coadjutor, Mr. Errington, look forward for some "friend to horticulture" introducing an article superior to any thing we have yet had. But for the present we must be content with garden mats, as they are called, yet something waterproof to throw over them would keep them dry, warm, and comfortable, as we cannot think wet mats lying on glass can be of much service, except, perhaps, obstructing that escape of heated air, through the overlaps and other interstices, which it is so necessary to keep inside. Boarded shutters we have tried, but there is such a current of air between that and the glass, that unless mats are used underneath, this sort of covering is liable to many objections. What we want is a sort of covering, light, pliable, and waterproof, at the same time cheap and durable; these qualities, doubtless, are difficult to combine, but we do not despair of having them by degrees. At all events, we must not omit a covering of some kind or other. Our remarks on the varieties of melons and their subsequent management, we must leave until another week.

J. ROSSON.

A WAY TO BE MISERABLE.

By the Authoress of "My Flowers," &c.

It is a very sad thing to see the thoughtless, careless way in which young people in the humbler classes take upon themselves to marry; and it is the cause of much of the poverty and distress we see around us. Almost as soon as a lad can earn his own bread, we hear his banns "put up." Usually with some idle, ignorant girl, who knows nothing, except how to work in the fields; and in many cases who has been driven out of the copses with a knife and a bundle of green wood cut from the trees and hedges, instead of lawfully picking up dead sticks, and honestly leaving that which she knew was not hers to take or touch.

Parents are never asked about the matter; they let their children take care of themselves at such an early age, that their authority is quite gone long before the boy or girl can discern between their right hand and their left; and the consequence is, of course, that when a young couple choose to marry, they ask no questions, and if objections are made, there is no power on the parents' side to make them obey. Very few parents, indeed, keep their children under proper control, and even when they do, it is surprising and grievous to see how early they begin to think and act for themselves, and how soon poverty, distress, and suffering, begin to be seen and felt.

These things tend very much to make the state of the poor distressing, far more so than it need to be. A boy and girl marrying upon trifling wages may get on somehow or other as long as they are alone, but when a family rises round them, the misery and want they all endure is beyond the imagination of those who do not see them in their cottages, and do not care to observe what is going on. The wife knows nothing—she cannot make a cup of gruel, nor bake bread, nor tell how to make her husband and children comfortable; all is scramble, discomfort, and dirt; while the husband, himself a boy, gets angry and violent, or vexed and soured, and goes off to the idle-corner and the beer-house.

Under the most favourable circumstances, early marriages among the poor are much to be regretted. A case under our own eyes shows this very clearly. The young woman lived for some years in our own family, and a better creature seldom entered a house. She was the very best-tempered, gentle-hearted, honest girl possible; nothing could make her cross, and her smiling face was never clouded. Sally had been brought up by her grandmother very strictly, and very well. When she left our service to take a higher situation than that for which we required her, she conducted herself properly, and only left the family to marry. A very steady, excellent young man, who had been a lodger for years with Sally's grandmother, had attached himself to her, and no objection could be made to him; but she was very young; her grandmother knew the cares and troubles of married life, and she laid them all down with simple but earnest plainness before her. Poor Sally! She could not see a bit of it. Thomas was so steady and good; they had known each other nearly all their lives, and she was herself so merry-hearted and good-tempered, that it did seem as if nothing really could go wrong. The grandmother shook her wiser and more experienced head; but the marriage took place, and the young people lived for a time under her roof. All went on well for a year or two; but Betty was old and particular in her ways; and Sally and her husband began to wish for a cottage of their own, where they could have their own little ways and fancies.

Scarcely had they settled themselves in their own humble home, and Sally enjoyed her baby in her own way, without the anxious interference of an older head, than her troubles and difficulties began. Thomas was seized with illness, and for some weeks poor Sally was in trouble and alarm for him, but when he became better, she was troubled for other things too. Regular work had brought regular wages; but when there was no work or wages, illness, the expenses attending illness, and the craving appetite of recovery, she began to *think and feel*, and sigh and weep. The shop accounts were growing sadly long, and it took a very long time for these honest creatures to pay up what they owed, and then not without depriving themselves of much of the food they needed. From this time Sally's open brow was

clouded; she had much to struggle with—much to endure; her faultless temper was never ruffled, but she could not smile as she did before, and she was silent as to the happiness of her married life. She always spoke highly of her husband's steadiness and industrious habits. He never went into a beer-house, and brought his money home to her; but still the smile was gone, and care settled upon Sally's youthful countenance.

Since that period Sally became the mother of two more children, one of them a sickly little creature, requiring care and watchfulness, and Thomas sometimes remained long out of work, until they became deeply and painfully in debt. All this tried them both, but the mother felt it the most severely, and I believe many tears were shed as she sat in her cottage alone. "Oh! if we had but waited a few years longer," she has said in our hearing, over and over again—"If I had but minded what grandmother said; but there, I thought I knew best, like all young people, and when I found out I was wrong, it was too late."

Now this is one of the most favourable cases of early marriage. Thomas is some years older than his wife, a man of steadiness, and *seriousness*, too; they are both well principled, and anxious to do all that is right. But what must an early marriage be, when the youth is unsteady, unsettled in the knowledge of right and wrong, fond of idle, worthless company, and taking some equally ignorant, untidy girl, with flowers under her bonnet, and a dirty gown, just because he wants some one to "do for him," as they express it, which means the duties a wife ought to fulfil, and of which the one he chooses knows and can do nothing. Can such a beginning of ignorance, folly, and poverty, end otherwise than miserably? If young people would only wait until a few more years had given them a little more knowledge and fitness for their solemn and important undertaking; if they would only wait until they could mend their husband's clothes; until they knew how to keep a house clean, and to boil a potato; how to make their scanty means go further, and their home comfortable to a poor man weary and wet with day-labour; there would not be so great an amount of wretchedness and evil in a parish as there is now.

It is a difficult thing to persuade the young; but if their parents would bring them up "in the nurture and admonition of the Lord," they would have power to make them obedient at any rate, until they were older, wiser, and more fitted to become wives and mothers. Early marriages amongst the better classes are not always the happiest; but among the poor they are full of disaster. If parents will only "train up their children in the way they should go," a blessing will surely go with them, and evils that now abound, might, by the Grace of God, be greatly softened, if not prevented entirely.

THE GOLDEN AND THE SILVER PHEASANTS.

(Continued from page 359.)

In several districts of England, the north especially, various breeds of fowls are styled "pheasant breeds," the name extending to "golden pheasant," "silver pheasant," and even "blue pheasant" fowls. It is a vulgar error, seriously entertained as an indisputable article of faith, that these prettily-feathered occupants of our poultry-yard derive their peculiarities and their parentage from some ancient intermixture with members of the genus *Phasianus*. The extreme improbability (to speak in gentle terms) of this hypothesis, I need not dilate on here, having fully entered into it elsewhere. Birds of this supposed fitz-pheasant origin, have been obligingly forwarded to me from more than one English county, either as enigmas for me to guess the solution of their puzzling existence on earth, or as proofs sufficient to convert any reasonable poultry-student from his heretical scepticism. They were not to be distinguished from Bolton Bays or Golden Hamburgs,—sub-varieties of that peculiar type of fowl, comprising several modifications of one general plan of form and proportion, to which the name of *Hamburg fowls* has been attached, for the sake of clearly separating them from other marked types of domestic *Galli*. But one point alone would make the presence of pheasant blood very doubtful. The Ham-

burgh fowls, especially the cock, are remarkable for having a very short, conical beak, as compared with other fowls, which has been likened to that of a sparrow. The comparison of the skull of any cock pheasant side by side with that of any *Hamborough* cockerel, will show how little blood-relationship, nay, even how slight generic community, there is between them.

The difficulty of bringing about any companionship between pheasants and fowls, is another significant consideration. Golden pheasants harmonize tolerably well with each other, whatever the sex. A male of this species would be more likely to run away in terror from any hen that was introduced to him, than to take it into his head to make advances. But silver pheasant cocks are very savage, and fight furiously. A common hen might as safely enter the den of a fox, as approach *them*. A bantam hen, confined with a silver pheasant cock, was very soon destroyed by him. It does not make any inter-breeding the more probable, that rare cases of tolerated companionship are now and then to be met with. Thus, Dr. Bevan favours me with a report of an experiment made by the late Sir Robert Vaughan:—"A silver pheasant having lost his lady, pined and rejected his food; Sir Robert ordered a common hen to be put in to him. For many days they kept as far from each other as their habitation permitted; at length the gentleman was observed to collect some grain, and call to his companion to come forward; she, evidently awe-struck, cowered away, but, by degrees, became familiar, and on his retreating, would come forward and eat. They continued together for some months, but not advancing to closer intimacy, the hen was removed, and the pheasant again pined and refused food. A second time the hen was introduced, and they continued to live together for years, but produced nothing. In this case, the experiment, I think, was conducted under peculiarly favourable circumstances, and is confirmatory of your opinions."

Silver pheasants will occasionally intermix with the common *Colchicus* species. The same correspondent writes: "Sir John Edwards's gamekeeper has just shot a woodcock in my poultry-yard, and as he has the management of the pheasants, I asked him whether any experiments had been tried among them. The only one was the confining a common hen pheasant with a silver pheasant cock, and the result was a brood resembling the male parent more than the female. When fit, the young were given their liberty upon a well-wooded hill, at the foot of which Sir John's residence and my own are situated (Machynlleth). One of this mixed breed the gamekeeper had just seen on the wing." Temminck gives other instances; but any case of reproductiveness on the part of any half-bred silver pheasant is *most rare*, if it has ever in truth occurred.

Offspring have also been very rarely produced between the male golden pheasant and the common hen pheasant. I have seen such living in the possession of Mr. Sayer, bird-stuffer, &c., Norwich; some were also exhibited at the Great Birmingham Show of 1861. The creatures have a very natural and healthy look. A person unacquainted with their origin would hardly guess it to be in opposition to the usual course of nature. But I believe they have proved absolutely sterile in every known instance, nor am I aware that any other than cocks of this kind have ever been hatched.—D.

PRACTICAL OBSERVATIONS ON THE MANAGEMENT OF BEES.

By Henry Newman Newman, Esq.

(Continued from page 341.)

VENTILATION.

This is another of the new doctrines of the day. It is quite plain that, after all, the common straw hives are the best for stock or increase, for in these the bees manage to ventilate their hives in their own way. I am convinced that many hives or boxes are destroyed, particularly the latter, by too much air being admitted. The "beggary account of empty boxes," which I see in my travels, convinces me that the beautiful "gothic hives," or "grotesque boxes," are all very well to look at, and may be classed amongst the ornamental, not the useful bee houses. Many of these interest-

ing hives are got up by interested persons, who charge a high price for them, a price quite preposterous in itself. The best of these hives are Mr. Nutt's, who certainly has made a neat hive, and the boxes I use are a little like his, but much more simple, and less expensive. Even these are out of the reach of poor people. It is quite remarkable how few of these elegant ventilating boxes contain bees. They seldom last two years, and they must be constantly visited, or the spider is constantly weaving its web around them. Not a week elapses but dozens of bees are destroyed.

The bees in the boxes, separated by tin dividers bored with small holes, always fill the small holes with wax, when the centre box is not filled entirely, which shews that they do not want ventilation.

SWARMING.

This season, to the real lover of bees, is the interesting time, and to those who admire the wonders of the insect creation, nothing can be more gratifying. The wonderful instinct shewn by the bees, their attachment to the mother queen, in fact the whole manner of increasing their species, have been the admiration of mankind, probably long before the time of the poet Virgil, who has thus immortalised it in his *georgics*:—

"Ergo apibus fœtis idem atque examine multo
Primus abundare et spumantia cogere pressis
Mella favis."

(He (a *Corycian* swain) was the first to abound with pregnant bees, and plentiful swarms, and to squeeze the frothing honey from the combs.)

Generally a silence prevails in the hive previously to the issuing of a swarm, when all at once what a rush they make! Workers and drones come out indiscriminately, head over heels in their haste, until they almost darken the air. Hark! what a splendid hum!! See, they begin to settle on that gooseberry bush. How lucky! No, the skittish capricious queen has left it and gone to that high espalier. See, they settle now—get your hives ready, operator. Beware where you tread. Here is a cluster of bees on the ground: examine it. Behold, it is the queen with about twenty or thirty faithful followers—seize her, and take her to the hive. Haste! haste! the main body of the bees are leaving the espalier, they have missed the queen!! This is a faithful description of a swarm sometimes, for it has often happened to myself.

Bees should be well watched during this season, otherwise many swarms will be lost. I am of opinion that among farmers and cottagers, at least one-third of the swarms are lost for want of watching, as, contrary to the usual opinion, those hives that have no bees clustered outside are much the most likely to swarm.

In 1844 I had an old stock, the bees of which lay out for ten days or more. I happened to have another very weak stock, which I examined, and found only about a hundred bees in the crown of the hive; I discovered the queen, and having caught her in my hand, I placed her on the board of this very populous hive. The guards rushed out and stopped her; at first they were very much inclined to fall on her, but after a rigid examination of her, although a stranger, they escorted her out of my sight into the hive. The very next morning this stock swarmed; and no doubt they had no spare queen to go out with the young swarm before this.

Last year, on a Sunday, a man in my employment watched my bees about mid-day. Two fine swarms came off from different hives and formed a junction, then alighted on the top of one of the hives. He observed a queen on the outside of the large bunch, and having seized her conveyed her to an empty hive, about five yards distant, and a large portion of the bees followed her and were safely hived.

In May, 1843, there was an immense fall of rain, which lasted all the month until June 15th. During this time there was little swarming, although the month of April was most favourable. A great many stocks died from want. I had one which had swarmed met with this fate.

When a swarm settles on a low bush, or in a row of peas, they are easily taken; but they more often fix on a stout espalier, or large branches of a tree; it is then to brush them off as gently as possible. If the hiver waits too long, they will take a second flight, and then they will get into some old tree, or wall, when they may be lost. This is apt to be the case in a broiling sun.

Swarms are very apt to return to the hive; I had one in

the summer of 1846 which swarmed four times and returned, although hived twice. By all means change the hives, and have them well cleaned with boiling hot water and aired in the sun. The bees are most capricious about the hives; they dislike a fusty hive.

In 1843, May being very wet, about the last day a swarm came off; it was cold and showery, therefore a most unlikely day, and the swarm took to the hive immediately. On my looking at the stock from which they came, I found no less than two young queens standing at the entrance; after a few minutes they walked into the hive. On the ground I found about two hundred young bees, apparently not two hours old; they had attempted to take wing, but were so weak that they fell near the hive; I firmly believe they belonged to one of the queens above-mentioned. I collected nearly all these bees, and replaced them with my own hand. The weather continued so tempestuous until the middle of June that the other swarm never came off; indeed, I was obliged to feed several stocks to prevent their being starved.

The custom of heating tin kettles, or pans, when bees are swarming, is the greatest piece of folly imaginable, unless to show the prescriptive right of the owner to follow them. The noise often drives the queen back. I never knew an instance of a swarm not settling first near the place, but *beware of a second flight*. When bees have settled, and they find no hive to ascend into, particularly if there be a scorching sun, they will soon look out for some old tree, or fly off, perhaps, a mile. Three years ago I saw a swarm which had flown nearly four miles, and they at last met with a vermin trap, and settled in it. They had made the trap full of combs. The reason so many swarms are lost is, that they swarm sometimes, and settle in some quiet corner, all in the space of four or five minutes. The owner comes into the garden just at the time when they are taking their *second flight*, and then, *bon voyage*, as the French say. He may ring his pans and kettles now to no purpose, if a constant watch be not kept. Every bush and tree, and green peas in rows, ought to be searched two or three times a day. I found a swarm one morning at 10 o'clock taking their flight from a row of peas, when they had been out all night, and followed them nearly a mile, and they got into a hollow tree, and were lost. It was a second or late swarm.

There is no doubt that bees are most capricious. I hived a swarm on the 31st of July, 1843, for my friend Major Bridgham, in the Island of Jersey. On the next day I went to his garden to see how they went on, and I found the bees in a most irritable state. At length they swarmed again, took a flight about three hundred yards, settling in the butt of an apple tree. On examining the hive they left, I found that the layers of straw had been sewed with tarry twine, and they had deserted it. We were obliged to hive them in a common small packing box, having nothing else at hand.

(To be continued.)

YORKSHIRE ASSOCIATION FOR THE IMPROVEMENT OF DOMESTIC POULTRY.

POULTRY shows have hitherto been almost exclusively confined to the North of England. In Yorkshire, each town has had its separate society, and its annual exhibition. At Leeds, Bradford, Halifax, Huddersfield, and Keighley, in turn, the neighbouring amateurs and breeders have met for competition. These meetings excite emulation, and the fancy has spread, and is spreading to such an extent, that a society has been formed for the whole county, to show once a year, at the principal towns alternately, and thus, as it were, to amalgamate forces, and bring into competition the stocks of all.

The first show of this society was held at the Riding School, in Halifax, on the 12th and 13th instant. The building is well lighted, and in all respects adapted for the purpose. Rows of good-sized pens were ranged around the walls, and five parallel lines ran at equal distances from one end of the building to the other, with ample space for the spectators between. In these receptacles were exhibited between 300 and 400 lots of fowl, in the highest possible condition, and of every variety of breed, from the largest Cochins to the most diminutive bantam. The exhibition is admitted, on all hands, to have been most successful, and

indeed to have become already second only to Birmingham. The utmost pains were taken by the committee and their indefatigable Honorary Secretary, Mr. H. W. Heaton, to give eclat to the first exhibition of their society, and we congratulate them on the success of their labours, and hope that it will lead to increasing excellence in their future shows.

Our readers will, no doubt, expect some account of the different classes, and will not be surprised to find that they varied somewhat in point of merit. In the Cochins China class, which we may probably say has now become the fashionable breed, there was a numerous entry, and some very fine specimens were shown. As a proof of the increasing favour deservedly bestowed upon these fine fowls, we may state that several pens were claimed, and others sold at high prices. There were birds of all colours, from the purest milk-white to black, and we never saw so numerous a class containing so few indifferent birds, although undoubtedly none of them were quite equal to the best pen shown at Birmingham.

In Dorkings, some very beautiful and very fine birds were exhibited, and they were quite sufficient in numbers to shew that this most useful breed of poultry has its admirers among the amateurs of Yorkshire.

The Spanish class was undoubtedly the cream of this exhibition. That at Birmingham was not to be compared to it, either in quality or quantity, and it is not too much to say that such a display of a class of poultry, at once useful and ornamental, was never before got together.

The good old English game fowl, although no longer kept for the brutal purpose of cock-fighting, have still their admirers, and were well represented at Halifax. For beauty, variety, and closeness of plumage, and neatness of appearance, there are no fowls which beat the game, and their utility is equal to their beauty.

The feathered fowl, here called gold and silver pheasants, and Chittaprats, or Bolton Greys, are emphatically the Yorkshire breeds. They are kept alike by rich and poor, and many excellent specimens may be seen running about the cottages of the mechanics and artisans at the outskirts of the different towns. As "poor men's fowls," they claim our best attention, and we are always glad to see a goodly number of them exhibited. In each class there were some first-rate pens, and we should suggest to the society that, at their future exhibitions, they might well permit labouring men to exhibit gratuitously. The Malays struck us to be the most indifferent class of all.

There were some curious birds exhibited in the mixed class, which is always interesting to the amateur and the naturalist. The pert and sassy little bantams were of every variety; black and white, gold and silver spangled, Nankins, and silk fowl, all were here, and some of them, let us add, sold for a good price.

The turkeys and geese were few, but good, and the ducks were a numerous and very excellent assemblage.

In the class of "extra stock," some of the finest fowls in the building were exhibited, although of course not for competition.

We regret to have to add, that this very successful exhibition was not patronised by the public so well as it deserved. There were amateurs in plenty, but the general company was by no means so numerous as might have been expected. It is possible that the committee made a mistake in not having fixed their first meeting for some of the larger towns, but, whatever be the cause, we hope it will be otherwise for the future, and that a society, which has got up so interesting an exhibition and is calculated to do so much good, will receive ample support, as well from the public as from amateurs.

TO CORRESPONDENTS.

CERONOTUSSES (Queen Mab).—*Ceronotus divaricatus* and *papillosus* are believed to be quite hardy for the open shrubbery in the south of England, but unless your situation is very favourable "four miles north of London," a very hard winter will kill them down to the ground. We have had them both so killed, but the plants were very young. They are excellent for a north wall, and we would give them a slight protection the first few years, and try them without a wall. *Ribes Gordonianus* is as hardy as a black currant. It is a fine cross-bred plant by our contributor, Mr. Benton. It is very rare, and a bad sign for a *Glycine*, or *Wistaria sinensis* to flower the first three years after planting. It is only when young plants of this are in a bad condition that we recommend them to be cut low down. If you cut about two feet from the tops it will do. The *Mule Pink* is certainly more easy to propagate from layers than

from pipings. The same reply applies to the common pink, clove, carnation, and all others of the family.

CLIMBERS (J. L.).—Yes, the *Cobaea scandens* will make a very good change in place of the canary creeper for the south side of your house. It is always best to make such changes with plants that we can turn out every year. Nothing is more tiresome, or shows less ingenuity, than to see the old arrangement over and over again. Sow the seeds of *Cobaea* directly in a strong heat, two or three seeds in a sixty-pot, and never think of transplanting them; but keep two of the strongest plants in each pot, and in three weeks after they are up, turn the ball entire into the next sized pots; then they never get a check, and they flower much sooner. Young *Cobaeas* being sure to run up with single stems, you must keep topping them, as you would kidney beans, until you have at least six or seven stems from near the ground; this also makes them flower sooner. But old plants of *Cobaea* flower far better, and much sooner, than the best young ones, and they keep over the winter easier than a geranium.

CHILLED EGGS.—A trustworthy correspondent, W. P. L., says, "As an encouragement to amateur fowl breeders, allow me to mention a circumstance which has occurred in my poultry yard within the last week. To my horror, a short time since, when I paid my matutinal visit, I found a sitting-hen off the eggs, and on another nest—the eggs quite cold, stone cold! Still, as it wanted only three days of the allotted twenty-one, I placed her on again, 'hoping against hope.' You can imagine my pleasure at finding, this morning, the whole brood of rare Cochins to have burst their bonds, and entered the first stage of vitality with unwonted vigour."

BEES.—R. A. says:—"On the first of July, 1851, one of my hives sent forth a prime swarm (consisting, as usual, of both drones and workers), which was hived in one of Taylor's bar-hives. About three weeks after, the bees of this swarm beginning to cluster at the entrance, the slides were withdrawn; but, as the bees refused to ascend into the upper box, they were again replaced on the first of August, under the impression that they had been withdrawn *too soon*. On the 2nd, however, a little after noon, upon going to look at the bees, I became convinced at once that a swarm had gone off; no clustering was observable as in the morning and on previous days, and, on looking through the windows, the hive appeared to be nearly depopulated. But what appeared to me to be the most singular was, that *not a single drone* was to be seen either inside or out of the hive, although they had been numerous before; had they been massacred, as is usual about this period, I should no doubt have found some about the stand, or on the ground, but not one was visible. From all these circumstances, I came to the conclusion that a cast must have been thrown. Now, as I only possessed another stock (the parent one), situate some 100 yards off, and in which the drones were not numerous, and as no other bees were kept within a mile or two of me, I became apprehensive lest the impregnation of the young queen should be retarded, or, perhaps, not take place at all (at all events not that season). I regret to say that I omitted to observe whether any young bees were hatched in due course (certainly no drones were), and, indeed, I thought no more about the matter until within three weeks ago, when I happened to be present when two *drones* nymphs were brought out of the hive, and again to-day (Feb. 29) when a small but *perfect drone*, still *alive*, was brought out; it was of rather a light colour, having apparently only just left its cell." In all probability the decrease of numbers in your hive was caused by the expulsion of the drones, and not by a cast leaving the box so early as thirty days after they had been hived. The young bees (which upon close inspection will be found to be in some way imperfect) that are now brought out of the hive, is an indication of the stock being in a good state, and breeding going on. Naturalists are not agreed upon the other subjects on which you ask our opinion.

THE MOREL.—W. M. writes as follows. "A correspondent of yours says, Morels do not grow commonly in this country as far as my experience goes. They grow in great abundance here (Necton, Norfolk). We have gathered a Morel here, recorded above *eight ounces in weight*. The growth was encouraged by wheeling a flower-pot over it, the hole at bottom being filled up."

THE MOREL.—Another correspondent (J. K. T.), asks for a description of it, and we give the following from Withering. "The Morel (*Phallus esculentus*) has an agreeable smell. Stem hollow, naked, white, one to two inches high, half to one inch diameter. *Pileus* (cap) buffy or brownish, entirely united to the stem, from the size of a pigeon's to that of a swan's egg; cells very large, angular like a honey-comb. Found about May in woods and hedges, in loamy soil, not unfrequent."

PEAT EARTH.—An Amateur writes to us thus:—"There is nothing about which I have found it more difficult to obtain any real information than the nature of the soil in which American plants can be grown to flourish, where the true peat from Wimbledon or Bagshot cannot be obtained. Is there no process by which peat of an inferior description could be made suitable? There is peat in my immediate vicinity which is by no means adverse to all vegetation, for (though no heath grows on it) it is well covered with cotton grass, orchises, the grass of Parnassus, the polygala, centaury, and others. It appears, however, to be too damp, and to have too little sand, for American plants, as you will judge by the specimen sent. If, however, these are its only *real* defects, could they not be remedied? If the peat were ridged and well turned over for eighteen months, and mixed largely with sand and silver-sand, would it then be fit for use, or is there anything in the nature of the peat itself which is deleterious, and which no pains or admixture will overcome?" Yours is so common a case, that we have given it more than usual space and attention. The soil you sent is totally different from the peat soil of places abounding in heath (*Erica*), and approaches very closely to that bog earth so abounding in vegetable matter as to be consumable as fuel. Every ten parts of it, when quite dry, we find contain three parts of vegetable matter. This is not so much as is contained by the fuel-bog-soil, but still is a great excess. Besides, we fear that it contains too much oxide of iron. However, it abounds in fibry matter, and much siliceous sand, so that it justifies a trial, and if you mix it with sharp drift sand in the proportion of one barrow load of the bog-soil to one barrow load of sand, and have it turned over ten or twelve times for a year, it may answer.

COCHIN-CHINA FOWLS (J. Rogers).—Write to Mr. Punchard, Blunt's Hall, Haverhill, Suffolk.

CANKER IN THE APPLE (Longville).—This disease arises from such dissimilar causes, as old age, stagnant water in the soil, bruises, &c., that it is impossible to state a remedy. All that we said last week about canker in the pear (page 361), is applicable to the same disease in the apple.

DANLIA ROOTS (W. G.).—Keeping these in the shade for twenty days after taking them up was not sufficient to dry them; and then putting them into a loft, and never looking at them until the end of February, was about the most careless treatment you could adopt. They should be thoroughly dried before storing; and the storing is best in a single layer covered with very dry sand, in a very dry, cool place, where you can frequently examine them, and remove any tubers which become mouldy or decayed.

BOTANY (J. B. M.).—Study Hefrey's *Outlines of Botany*, and Smith's *Introduction to Botany*.

POULTRY-YARD (Q-d).—We should have the yard laid down partly with common grass seeds, appropriate to the soil, and partly with gravel. There ought to be a corner supplied with coal-ashes and limy rubbish, in which the fowls may bask, and from which they may obtain materials for their egg-shells. You are quite correct in sheltering your dwarf pear-trees. We should keep the shelter on by day, as well as by night, except in cold weather, for the purpose of retarding the blossom-buds bursting. So soon as these burst you must uncover in the day-time, except in frosty or inclement weather.

OLD FUCHSIAS BREAKING IN THE DARK, &c. (J. R.).—See Mr. Fish's paper to-day.

GENERAL MANAGEMENT OF CACTUS TRIBES (Ibid).—Grow and ripen shoots in summer; keep dry and at rest in winter; water in spring, when showing, and when in bloom. See a long article by Mr. Fish not long ago.

PEACH OR APRICOT ON BACK WALL OF CONSERVATORY (Ibid).—"Where there is a walk all round, border two feet wide, length ten feet, depth two feet." In this circumstance you will succeed better with a peach than with an apricot; but a Bellegarde peach, or a Moorpark apricot, could only do well by your keeping the house low in temperature in winter, seldom raising it above 40° by fire-heat. If you ranged from 45° to 50°, you would expand the blossoms prematurely, and then in spring you would require a higher temperature than would suit the generality of greenhouse plants. By keeping a cool temperature in winter, your trees would open their blossoms about a fortnight, or more, earlier, than in the open air; and, provided your greenhouse plants did not shade the tree in summer, we believe you would succeed well, provided the bottom of your border was open, or well drained. Still, we would say *yes* to your enquiry, likewise, as to planting such a wall with ornamental plants, as your house would maintain more of a unity of expression; and for choice, we would direct you to what was said last season about oranges for such a place, and to what was said last week about camellias, and, if these did not suit you, then there is the *Acacia armata*, beautiful with its green foliage at all times, and its golden yellow in winter and spring; and then there are many creepers, such as the *passiflora*; and last, not least, you might render the back of your wall quite *unique* by covering it with the stronger-growing cactus, such as *speciosissimus*; while in front of them, in the border, you might plant the smaller sorts. How nice such a wall would look covered with *speciosissimus*, and every here and there a bunch grafted in of the *truncatum*, *Russellianum*, &c.

MAY CAMELLIAS BE CUT-IN FREELY (T. S. Stock).—Yes. See what we said last week. They will stand it freely, if you can give them a close, moist atmosphere, and a higher temperature afterwards. The easiest mode of propagating *Camellias*, is by grafting on nice young stocks in spring and autumn, and placing them in a nice, sweet hotbed. Cuttings are easiest struck now before growth has commenced, or early in autumn, after growth is consolidated; each bud, by splitting the wood up the middle, will make a cutting, but it must have time. *Liquid-manure to Camellias in flower*, must be given more sparingly now than when the plants are commencing growth, as if too powerful, the buds will be thrown off, or the blooms will be blotched. Err on the safe side at all times. If you had mentioned your manure medium, we could have advised you better. One ounce of guano, and two ounces of super-phosphate of lime, would do for a four-gallon pail. A shovelful of soot would do for a thirty-six gallon barrel. We use it stronger at other times. Two or three spadeful of horse or cow-dung would do for a similar barrel, after the rankness was gone. It is the most economical mode to make up a barrel rather strong and dilute it as used—but err on the safe side.

WALL-TREES DYING (A Young Gardener).—Pray do not blame your wall, neither the aspect. If your trees do not thrive, be assured neither of the former are to blame. The whole is self-evident; what you term "soil" is not befitting the trees, perhaps naturally infertile, or of wrong texture, or deficient in organic matter. In all these cases, it is best to obtain professional advice from those of long standing in their profession.

TULIP BED (The Wife of a Clergyman).—The tulips will flower a month earlier than you expect, and if you sow the *Nemophilas* now over the tulips they will just succeed the tulips, and no more, but if you can collect seedlings of them about the garden from self-sown, or otherwise, last autumn, and plant them thickly among the tulips, they will be in bloom by the end of April, and ready to come off along with the tulips, or sooner, to make room for the summer crop. *Clarkias* will not do over any of the spring bulbs; they grow "too high and branchy," as you say.

ROSES AGAIN (J. P. P. H.).—Make a selection from our lists of *Ayrshire* and evergreen climbing roses, adding *The Garland*, alias *Madame d'Arley*, and the *Crimson Bourneville*, and we could do no more for you.

HYBRIDISING (One who knows you).—If you really do know us, you must know, also, that we do not willingly put our spoon into another man's pot. If you had read attentively one-half of what we wrote, you would have known that Dr. Herbert had given four cases which proved the direct contrary. We all of us know so very little of these things, that it is foolish to deduce guiding rules yet, certainly not from anything we know of about the cactus family. There is not a man on earth who can make out a species from a variety in any of the sections, that is all.

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WEEKLY CALENDAR.

M	D	W	D	MARCH 18—24, 1852.	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
					Barometer.	Thermo.	Wind.	Rain in In.						
18	Th			PRINCESS LOUISA BORN, 1848.	29.992—29.648	51—36	S.	10	9 a. 6	8 a. 6	5 51	27	8 8	78
19	F			Turkey lays.	29.657—29.344	51—43	S.W.	33	6	9	6 11	28	7 50	79
20	S			Marsh Marigold flowers.	29.345—29.340	58—37	S.W.	—	4	11	sets.	29	7 32	80
21	Sun			4TH, or MIDLENT SUNDAY.	29.310—29.338	56—40	S.W.	62	2	13	6 a 54	1	7 14	81
22	M			Sun's declination, 0° 49' N.	29.108—28.753	56—41	S.W.	44	v	14	7 59	2	6 55	82
23	Tu			Ivy Berries ripe.	29.278—28.995	51—39	S.W.	13	57	16	9 5	3	6 37	83
24	W				29.580—29.281	50—34	S.W.	02	55	18	10 13	4	6 19	84

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 50.8° and 34.5° respectively. The greatest heat, 69°, occurred on the 20th in 1836; and the lowest cold, 18° on the 18th in 1850. During the period 113 days were fine, and on 62 rain fell.

BRITISH WILD FLOWERS.

CROWFOOTS—RANUNCULACEÆ.

RANUNCULUS.

(Continued from page 349.)

SECTION WITH LEAVES CUT OR LOBED.

RANUNCULUS ACRIS: Upright Meadow Crowfoot; Buttercups.

Description.—This is a perennial. *Root* rather tuberous, with many long, simple, white, fibres. *Stem* two feet high, erect, cylindrical, hollow, leafy, clothed with close-pressed hairs or bristles; much branched above, and many-flowered. *Root leaves* on long upright hairy footstalks, with three or five deep lobes; lobes variously subdivided and cut, more or less hairy, deep-purple at points of segments; *stem-leaves* nearly stalkless, but sheathing the joints, with fewer and narrower segments; uppermost stem-leaves much smaller, in three narrow entire lobes; sometimes simple and narrow. *Flowers* bright yellow, on round even stalks, covered with close hairs, and not furrowed. *Calyx* hairy, spreading, coloured, deciduous. *Nectary* covered by a scale. *Seeds* flatly convex, like those of the Vetch, smooth, brown, with a small, slightly curved point.

Places where found.—Very common in meadows and pastures. It is found in wet spots, even on our loftiest mountains, but becomes there single-flowered and small.

Time of flowering.—June and July.

History.—A double variety is known in our gardens as *Double-yellow Bachelors Buttons*. Its juices are so acrid, that gathering the plant, and carrying it some distance in the naked hand, causes the skin in contact with it to be inflamed. Sheep and goats eat it, but cows, horses, and pigs, reject it, except hard pressed by hunger, and then they will only nibble off the points of the youngest shoots, which are less acrid than the older growths. When made into hay it loses its acidity, but is too woody to afford much nourishment. The name of *Butter-cups*, applied commonly to the flowers of this and of some other species, arose from the erroneous opinion that the yellow colour given to butter by rich pasturage is occasioned by these flowers so usually found there.

RANUNCULUS ARVENSIS: Corn Crowfoot.

Description.—It is an annual. *Root* fibrous. *Herbage* of a pale shining green, nearly smooth. *Stem* twelve to fifteen inches high, erect, in a favourable soil much branched, cylindrical, leafy, downy at top. *Leaves* alternate, the upper ones partly opposite, all once or twice divided in a three-fold manner, with narrow-spear-head, bluntnish, mostly entire, rather fleshy segments. *Flowers* small, lemon-coloured, solitary, on simple stalks opposite to the leaves. *Calyx* spreading, narrow, hairy, yellowish. *Petals* reversed egg-shaped. *Seeds* large, each with an upright awl-shaped point, their flat sides densely armed with numerous, sharp, prominent prickles.

Places where found.—Common in corn-fields.

Time of flowering.—June to August.

History.—It is a violent poison. Three ounces of its juice killed a dog in four minutes. Yet in Italy, sheep and other animals are said to eat it, although it is so acrid as to cause cholera and inflammation of the stomach. In Britain this is not known to occur, perhaps because the plant is chiefly found in corn-fields, where cattle are not admitted until the stems are dead or dying. In the cases of sheep poisoned by it in Italy, pouring vinegar down their throats was found to be the best remedy. Not being very luxuriant, it is not a formidable weed, but being most frequent on poor soils, it has received the name of *Hungerweed*, in some districts. Its poisonous qualities should make cultivators careful to destroy it. Parkinson says that the decoction of the leaves of the field Crowfoot healthe scabs and the itch, but they must not be suffered to remain long upon the places; it is likewise used, he adds, to check the falling off of the hair, the head being washed with it warmed, and after two or three hours washed off with fresh warm water.

RANUNCULUS HEDERACEUS: Ivy-like Crowfoot; Ivy-leaved Crowfoot; Ivy-leaved Water Crowfoot.



Description.—This, a perennial, is a little, smooth, branching, creeping or floating herb, sending down rootlets from each joint of its hollow leafy stem. *Roots* numerous, simple, whitish. *Leaves* shining, rather fleshy, stalked, opposite or alternate, with three or five shallow lobes, some kidney-shaped; their colour dark green, often with a black spot on the disk; leaf-stalks flattened. *Flowers* small, with narrow white petals, and from five or twelve stamens, but rarely more than seven. *Nectary* a yellowish, naked pore. *Seeds* swollen, with minute transverse wrinkles, about the size of a Vetch seed.

Places where found.—On the mud of shallow ditches, and slow rivulets.

Time of flowering.—May to August.

History.—Ray, on the authority of Dr. Mapletoft, says that the clear liquid made from a handful each of the young tops of Alder shoots, Ivy-leaved Crowfoot, and Sage, soaked all night in white wine, is an excellent remedy in dropsical and scorbutic cases. Unfortunately he does not state how it is to be applied. (Smith, Withering, Martyn, Ray.)

WE must select one more letter from those of Dr. JAMES ANDERSON before we pass on to the letters from others of Mr. Forsyth's correspondents, and we select it because it throws considerable light upon a controversy which engaged very much of the attention of gardeners and naturalists at the commencement of the present cen-

tury. In 1797, Dr. Anderson removed from Scotland, and settled at Isleworth, near London, where he became, more even than previously, immersed within a circle of literary and scientific friends, who, like himself, delighted in everything connected with the culture of plants. Just at this time, Mr. Forsyth had come before

the public with his plaister for the renovation of decayed trees, and as we have vainly endeavoured to find reasons for differing from our opinion on this subject published two years since, we may be excused for quoting what we then stated. Mr. Forsyth laid claim to success in his research after this sanitative composition; for he published "an account of a method of cure *invented* and practised" by himself; and government gave him £1,500 for the discovery. They proposed to double the sum upon certain facts being established by him; but in the meantime Mr. Knight, the late president of the Horticultural Society, stepped forth in the discharge of a distasteful public duty—to dispute Mr. Forsyth's title to any reward. We have had occasion to examine minutely into the merits of the contest, and regret to have arrived at the conclusion, that the composition Mr. Forsyth employed was borrowed from Hitt, and other writers upon the cultivation of trees; and that the cures he alleged to have effected were not of the extent or importance certified.

The plaister trumpeted abroad by Mr. Forsyth for healing the wounds and restoring the vigour of decayed trees was thus compounded. One bushel of fresh *cow-dung*; half-a-bushel of *lime rubbish*, that from the ceilings of rooms is preferable, or powdered chalk; half a-bushel of *wood ashes*; one-sixteenth of a bushel of sand; the three last sifted fine. The whole to be mixed and beaten together until they form a fine plaister.

Now there is nothing in this compound sufficiently differing from other compounds recommended by his contemporaries and predecessors to entitle him to call it his invention; but, supposing that an arbitrary difference in the proportions of the constituents suffices to sustain such claims, still what can be said in defence of his assertion, that that composition has filled with young wood the hollow trunks of timber trees, and that he had in his possession parts of the trunk of a tree in which the new wood, by the efficacious power of his "poor tree's plaister," had been made to incorporate with the old; and that trees so cured were rendered as fit for the navy as though they had never been injured? Every gardener, every physiologist, knows that this could not be true. New wood and new bark may be induced to grow over old wood, but no power, no application, will induce them to unite to it. It is quite true that Dr. Lettsom, Dr. Anderson, and others, who ought to have been more circumspect, certified that Mr. Forsyth's statements contained "nothing more than the truth;" but they afterwards either acknowledged that they did so on evidence that ought not to have been deemed sufficient, or that they meant no more than to testify in favour of "the utility" of Mr. Forsyth's plaister. Of this there can be no doubt, because every application excluding the rain and air from a tree's wound is of great "utility." It is also quite true that Mr. Forsyth received a parliamentary grant of money, but it was granted upon inconclusive evidence; and, as Mr. Knight observes, affords a much better proof that he was paid for an important discovery than that he made one. The whole of the correspondence on the subject, between Mr. Knight and Dr. Lettsom, can be referred to in the

74th and 75th volumes of *The Gentleman's Magazine*, and may be read as a warning how literary controversy should *not* be conducted. Dr. Lettsom had rashly attested to the truth of that of which he was not a competent judge, and had not the noble candour to seek a fair examination; whilst Mr. Knight poured forth insinuations and charges in a wrathful tone, very unbecoming either a philosopher or a gentleman.

In the course of the controversy, Mr. Knight very needlessly charged Dr. Anderson with acting from interested motives, and with having written the chief portion of Mr. Forsyth's works. This Mr. Forsyth denies, and as we have no evidence to the contrary, there the matter must rest. It is certain, however, that he accepted paragraphs from the pen of Dr. Anderson, for the whole of that suggested in the following letter, will be found unacknowledged in the preface to the second edition of his *Treatise on the Culture and Management of Fruit Trees*.

DR. JAMES ANDERSON TO MR. FORSYTH.

Isleworth, 25th Jan., 1803.

Dear Sir,—In our haste not to miss the coach I find that we forgot the vine cutting, which I send along with this; if you think it will be the worse for being out of the ground, I can spare you another, if you choose it, after the frost is gone.

In reflecting on the passage we read in Mr. Knight's pamphlet, I think you should quote the whole of that paragraph, as it will give you a fine opportunity of answering his question very handsomely, which you may do somewhat to the following effect:—

"I feel myself much indebted to Mr. Knight for the very handsome compliment he has, unintentionally it is true, here paid to my practice. If I could be vain of anything of the kind, I certainly should be so of this, because it comes from one who will not be suspected of intending to flatter, and it exhibits my plaster in a much more conspicuous light than I should otherwise perhaps have thought of; I therefore shall answer his question with pleasure. From the manner in which the question is put, it is evident that Mr. K. thinks that the operation of cutting over a decayed *peach* tree is attended with so much danger that it is impossible to prevent a great proportion of those which have been so cut over from dying. In this opinion I believe he will be corroborated by a great majority of those gardeners who have attempted it in the *common mode of practice*; I have, however, the pleasure to be able to assure him, that from the time that I applied my salve to these wounded trees, which is now a great many years, it escapes my recollection, and that of others who have been constantly employed in the gardens of Kensington, if a *single tree*, whether apricot, peach, or nectarine, has died from being cut over when under *my mode of management*, altho' on some occasions that operation has been performed under circumstances extremely unfavourable, in particular four trees — peach [and so on, naming the particular kinds of fruit trees that were dug out and laid upon the heap of mould exposed to the frost, and the circumstances attending them]. Nor is it a few only of these kinds of trees that have been cut down by me and renewed; for I find, upon a survey made with a view to answer this question, that there are now growing in Kensington gardens no fewer than (sixty) peach, nectarine, and apricot trees that have been so cut down and renewed, and which are now in as flourishing a state as I could wish trees of that sort to be. Neither were these operations performed in secret, or with a view to concealment of any sort, but openly, under the eye and with the assistance of the gardeners employed in that ground, who have all had opportunities of observing every step in the progress of these experiments, if they chose it.

"As to the allegations of Mr. K., that if such decayed trees have actually set out new shoots at all, it must have been from the *roots* only, and nowhere else—the short answer to

this is, that he is here under a great mistake. Every gardener knows if this had been the case the trees must all have been budded anew before they had come into bearing. None of those trees have been budded afresh, unless it was a few which carried fruit of a kind that I did not wish to propagate, which were budded with better sorts. So far is the operation of budding in this case from being necessary, that I have been obliged to cut down some old trees (particularly one kind of cherry), in order to preserve the kind of fruit they carried, which could be obtained nowhere else, and which were past bearing. They have now great plenty of young wood, and in full bearing.

"I ought surely to thank this gentleman for having induced me to bring forward these strong facts to the public, which I otherwise should not have thought of doing. From the same consideration I look forward with pleasure to the prospect of having other facts of a similar nature investigated upon the spot by gentlemen who will not be suspected of partiality to me, under the watchful superintendence of Mr. Knight, at a meeting proposed by Dr. Anderson for that purpose,* and which I hope nothing will prevent taking place. The more minute the investigation shall be, it will be found to be, as in the above instance, the more satisfactory to me."

You may put the above, or such parts of it as you approve, into your own words. But on no account omit your table of the produce of fruit, which I shall wish to see before you put it to the press. I am, dear Sir, yours sincerely,

JAS. ANDERSON.

Let me know what you think of the enclosed.

GOSSIP.

On the 4th instant, at the *National Floricultural Society*, Mr. Edwards was re-elected its honorary secretary. Trust in the soundness of its decisions has been for some time declining, and now that the society has proclaimed that even those against whom grave charges of dishonest shewing remain unrefuted are not thereby disqualified for its most influential offices, that trust must be still more weakened; and few will think that they act correctly by continuing to bestow upon it encouragement.

The *Royal Oxfordshire Horticultural Society* have issued a goodly schedule of prizes for 1852. The exhibition days are April 20; May 25; June 23; July 20; and September 23.

Some months since, the use of *Cayenne pepper* as a fumigator was advocated in our pages; and we are glad to see, "in a contemporary journal," that Mr. W. P. Ayres, of Brooklands Nursery, Blackheath, after acknowledging that he was indebted to us for the suggestion, adds—

"A short time back, having no tobacco-paper, and not liking to give 4s. 6d. per pound for tobacco, I made an experiment of a small quantity of tobacco and Cayenne combined, and am delighted with the result. Choosing a damp still night, about two quarts of glowing fire was placed upon a wire sieve, and that was elevated upon three bricks in the pathway of the centre house (three being smoked at the same time) to increase the draught. Over the fire some nitre-paper, torn into small pieces, was placed, then a handful of damp stable litter, and then the tobacco, which had been damped and thoroughly impregnated with the pepper. The quantity used was 6 oz. of tobacco, and 2 oz. of Cayenne, the expense being about 3s.; and the houses were 90 feet long, 16 feet wide, and tolerably lofty. One hour after the fire was out, not a living insect could be found; and I am quite sure the tobacco and Cayenne did fully as much execution as when we used 7 lbs. of tobacco-paper at an expense of 10s. 6d. The Cayenne was a common kind, which I purchased at 8d. per ounce; but no doubt common Chillies would be better than adulterated pepper, and these I intend to grow for my own use this season. Thus you see "fumigators" are rendered useless; a very small quantity of tobacco with Cayenne is sufficient, and what is still better, the horrible stench of strong tobacco or tobacco-paper is got rid of; for with the small quantity used, the smell is driven quite off in 24 hours. Let me, however, caution the reader that the tobacco and

Cayenne, in addition to destroying insects, are an excellent recipe to "catch a good cold;"—for myself, my foreman, and an assistant, had each to pay that penalty for our knowledge. It is, however, quite unnecessary to enter the house if the fire is properly lighted at the first start, and the paper, litter, and tobacco are damped at the time they are put on. If the sieve is placed near the door, then by opening it a little the draught is increased, and the necessity for entering entirely obviated."

HAIRY CATHCARTIA.

(*Cathcartia villosa*).—*Botanical Magazine*, t. 4596.



THIS is a new genus of poppyworts, named by Dr. Hooker in honour of J. F. Cathcart, one of the East India Company's district judges in Bengal. It is a native of the Sikkim Hymalaya, where it was discovered by Dr. Hooker when on his late mission to the east, whence he sent seeds of it to the Kew Gardens in 1850. It there flowered last June, and ripened seeds the following month, from which we may infer that it is only an ephemeral addition to botanical collections, and little suited to our present style of gardening. A poppy-like, hardy annual, with yellow nodding flowers, holding in bloom but a few weeks in the height of summer, is not likely to attract much public attention, unless its roots prove perennial, of which there is some hope. The usual treatment of hardy annuals will suit it, and by sowing it in April, and at the end of May, and again in July, its duration may probably be lengthened for some months.

Mr. Cathcart is well deserving of such a commemoration as is afforded by this plant, for "during a residence at Dorjeling he devoted his whole time to the illustration of the botany of that neighbourhood, and superintended the execution by native artists, at his own expense, of a collection of upwards of 700 folio coloured plates of Himalayan plants." B. J.

* See his letters in the *Morning Chronicle*.—*Morning Chronicle*, Jan. 26.

GENERAL PRINCIPLES OF FORCING.

THE pressure of enquiries for advice at this exceedingly busy period, renders it impossible to keep pace with every individual necessities, especially if treated singly and in detail. It will be well, therefore, occasionally to advert to, and explain, those general principles which are, as it were, the keys to the whole art of forcing, from the cherry up to the pine-apple; which two may be taken as the minimum and maximum extremes for the application of artificial warmth.

First of all, *heat*. This we must consider under two heads—artificial and natural heat; for their effects are very different. Now that the sun gets much power, let a jealous eye be kept on all fires; more harm is done by an improper application of artificial heat than by starvation, especially in the forenoon. Not every forcer is aware, or fully on his guard, as to the rapidly increasing rate at which temperatures rise on a bright morning in March or April, say from eight to ten o'clock, especially if a fire has been used through the night. Even as our politicians are wont to say, that election battles must be principally fought in the registration courts, so must the forcer's chief battle be fought in that out-of-the-way place, called a stoke-hole. Good gardeners, men of long experience, are much in the habit of taking a peep at their fire-places; there is no leaving these things entirely to underlings, for it so happens that, not only is a crop of fruit perilled by injudicious firing, but the pocket also suffers. The safest practice is to cause every fire to be put out soon after six on every fine morning, the fire holes raked clean, and the fire immediately laid for lighting, which may be done about eleven o'clock. The remaining heat of the furnace walls will dry any rough material for lighting speedily. Of course, if the afternoon is likely to prove bright and warm, the fire will require but little encouragement; these things must be ruled by common sense and a prudent forecast. Every gardener is, or ought to be, weather wise, not prophetically for weeks or months, but, what is of far more importance, a capital foreteller of what the afternoon and night may be.

And now as to *sun-heat*, the great elixir of the vegetable world. Let us in the first place remind our readers that it is much more economical than fire-heat, and not to despise it because it is cheap.

Much sun-heat is thrown away, if we may apply such an expression, and this in the earlier part of the day is, we fear, unavoidable with those who are not real practicals. We here write guardedly, for better waste sun-heat than burn the foliage of plants, or, indeed, encourage such an *extreme* temperature, as although it may not at once show what is technically termed burning, or scorching, yet, by causing excessive vegetable perspiration, lays the foundation of weakness. Soon, however, after the sun has passed the meridian, let preparations be made by the forcer to turn his heat to account. It may be the day is *fitfully* bright—if so, a slight reduction of ventilation may be effected, and as early as two o'clock, taking care to keep a jealous eye on the affair for another hour or so. A person in the habit of watching the clouds can soon tell how to judge these things. If they are in huge fields, of course there will be bursts of sunshine, with gluts of deep shade; if a mottled sky, and the clouds in well-divided masses, much sun-heat may be indulged in; and so on with other classifications of the clouds.

But here another aspect of the question presents itself—we have yet another powerful agent to contend against—the *wind*. In all cases of cutting winds, we find it the best policy to sustain a *moderate* temperature; in fact, if very severe, to fall to the minimum point, or nearly so; by such means we are not driven to any material amount of ventilation, in the event of bursts

of sunshine, which must be the case if much firing is used. In such cases, too, a considerable amount of atmospheric moisture may in general be applied, especially whilst the houses are under ventilation; this will soften the dryness of a too lively atmosphere, which carries with too great a rapidity dry heat from pipes or flues.

Of course at night no air will be given under such circumstances; as before observed, the forcer should betake himself to as low a temperature as convenient. The hanging of canvass, or other breaks, before the apertures, is of excellent service under trying circumstances, especially before points of *entrance*, which will generally be at the lower levels.

As to the principles of ordinary *ventilation*, they are simple enough. What is termed "giving air," by no means expresses all the purposes to which the opening of sashes may be employed. Air is given to let out surplus heat, to enliven and renew the contaminated or robbed atmosphere, and to dry up moisture in excess. Now, each of these processes require, it may be, a difference either in the mode, or degree, or both. Thus, in order to let out surplus heat, the apertures at the highest level are mainly employed; for by a universal law, whether in-doors or out, heated air will ascend. In order to enliven or renew the contaminated atmosphere, necessarily engendered through a partial exclusion of the refreshing current from without, there should be a specific supply from a low level, this supply delivered in a ratio nearly equal to the rate of the heated air passing out at the high level. If it does not amount to this, the exchange must take place at the high level, where it will be found, in all cases, a sort of rotary motion is going on, something like the phenomena presented by water in boiling, where, the fire being equal on all sides, the water springs like a fountain from the outsides, and descends with a beautiful equality down the centre.

The giving air, in order to dry up moisture in excess, is simple enough. A lively current is necessary; a motion in the air, we mean, that can be felt. Under certain circumstances, however, a necessity arises for dispersing stagnated and hovering damps, with a guarantee against cutting draughts, and this requires some caution. Let us put a case. Suppose a dull period in February, of "fill dyke" notoriety, the case in hand, some early forcing or plant-house, in which an indulgence in atmospheric moisture, combined with a concurrence of cloudy weather and a sluggish condition of air, have produced evident signs of stagnation; and now let the problem be, How to disperse stagnation without lowering the temperature in any prejudicial degree? We have a house, let us say, in which there is an entrance of air at a low level, and an outlet at a high level. Heat, artificial heat, most likely must be called in requisition, and if no danger exists from sun-warmth, which is not very imminent at this early period, the first point is to warm well the pipes or flues. Here, then, we have rarefaction, the basis of the whole affair—sunshine or not.

And now comes the question of draught, or, as our very cautious men say, "cold currents." Well, and cold currents, after several days coddling, are by no means congenial to vegetation, unused to excessive draughts through the medium of perspiration, accompanied with torpidity of system arising from a necessarily sluggish root-action in the early spring. It should here be observed, that the question of draughts or currents is one of demand and supply. If the demand, or in other words the escape of heated air, is faster than the entrance of the cold air, the current will be livelier, and *vice versa*. In a majority of cases, a copious admission of front air at so early a period would be incompatible with the well-being of highly-excited and tender plants; therefore the admissions at a low level, and consequently of cold air, must be well broken. But it is

astonishing how soon a free circulation, established by means of a very moderate yet certain entrance, coupled with as liberal an escape at a high level as circumstances permit, will disperse stagnated damps; granted, that all fresh applications of the means of producing atmospheric moisture are withheld. The frequent application of *atmospheric moisture* in hothouses is, of all others, the chief cause of the immense superiority in modern plant and fruit culture. Indeed, our great orchid growers are so used to the watery element, that they may be considered nearly amphibious. And not only the frequency of application, but the special provision for a permanency, which almost every hothouse of any pretensions in these days contains, is eminently calculated to ensure success in cultural matters.

To lay down rules for its application is somewhat difficult, inasmuch as the inmates of our houses differ so much. As a maxim, however, all floors may be moistened three times every day, from the middle of February until the end of October, excepting houses containing ripe fruit, such as grapes, &c. All connected with forcing houses in which much artificial warmth is used should well consider the uses of water as a heat carrier. Much of what is termed scorching in vineries, might, doubtless, be prevented by a liberal application of water over floors, walls, the tan, &c., about eleven o'clock in the forenoon of very hot days. Very high temperatures are liable to be engendered suddenly by the intensity of the sun's rays, especially in days when there is little wind, and some heat remains in flues or pipes. Some six or eight degrees may thus be dispersed in a very short period by that means, besides its purifying effects on the vitiated atmosphere. Most of our forced matters, too, enjoy applications from the syringe morning and evening, always excepting grapes in fruit; these we have long proved may be grown in the highest perfection without syringing, from the moment they show blossoms.

As for *light*, this is scarcely to be placed in the category of controllable agents; without this, however, in a proper ratio, all the other applications will, in some degree, be negative. Let every one, at least, keep all his glass roofs, sashes, &c., perfectly clean.

R. ERRINGTON.

HYBRIDISING.

If I had my own way, I should always prefer saying what I had to advance about any tribe or family of plants, in a consecutive order, and, after that, give a digest of the whole in the last article on that subject, as I promised to do about the Roses last autumn, a promise, by the way, which still lies in the bud; but when such hasty orders come in as that about packing trees for Australia, this arrangement goes to the wall, and there is no help for it. The subject of improving plants by judicious crossing, however, is gaining ground more and more every year, and I must take advantage of every opportunity which offers for edging in a few notes on that subject as often as I can, because correspondents have thrown the mantle of the cross-breeder over my shoulders, and they *will* draw me out, whether I like it or not. To shew that I am right about the increased interest on this subject, it is only necessary to say, that a good part of the lecture given before the Horticultural Society the other day was in illustration of it.

Every subject brought before the Horticultural Society, at these meetings in Regent-street, is lectured upon according to the degree of interest the subject is known to require or command; and in a large room filled with people from all parts of the kingdom, anxious to catch up every sentence about a favourite subject, it is not difficult to find out which way the wind blows. One of the prettiest cross-bred plants I have

seen for years, was the cause of bringing this subject on the carpet at that meeting—it was a new *Cyclamen*, with white flowers, having pinkish centres or eyes, and raised from the *Cyclamen coum*, and the Persian *Cyclamen*, by Mr. Atkins, of Painswick, near Gloucester, and, after saying all that could be said about it, the lecturer strongly advised the company to examine the plant for themselves after the meeting was over, which they did with readiness, and Mr. Atkins was on the spot, who very politely answered every question about his seedlings; and if he sees this page, we, of THE COTTAGE GARDENER, would be very thankful if he would kindly send us a short paper about his experiments, for, as he himself acknowledged at the time, very few writers have hit on the right way of going to work with these *Cyclamens*. From 1832 to 1836 I crossed some of them every season, but my experiments at that time were not directed for the improvement of races, and to this day I really know very little about them.

There was one more plant exhibited on this occasion, of much interest to the flower-gardener, and I am glad that I can confidently recommend it to every one who is fond of choice new hardy plants—it was an evergreen *Berberis*, from Nepal, called *Berberis Nepalensis*. It has the same habit, and much of the appearance, of the now common *Berberis aquifolium*, with one flower-head from the top of the plant, composed of six spikes of yellow flowers in a cluster. It was stated in reference to it, that the fruit or berries were oval, and deep purple, with a beautiful bloom like some plum or black grape, and that there is another *Berberis* from India, much like it, from the Neilgherry range, called *acanthus-leaved*, but the fruit is quite round, and that, if seeds of the two were sent home in one packet, they could be easily separated by these marks—the oval berry and the round one. When Mr. Errington begins his promised notes about the crossing of fruit-trees and bushes, I hope he will not overlook these evergreen berberies. I expect great things from them in the desert some day.

Another new plant, called *Rhododendron ciliatum*, caused some interest, as being the first of the Sikkim rhododendrons which flowered in Europe. The plant was only a few inches high, the flowers a light blush, but they were forced, and will no doubt be of a deeper tint in their natural way; they were very large for so small a plant. Its merits as a dwarf novelty for the hybridiser were also lectured upon very earnestly. This is just as it ought to be—a public lecturer, or a public writer, on flowers and gardening, should never miss an opportunity of keeping the subject before the public, and suggesting improvements in all our doings as often as possible. Along with these, and many others not within my beat, was a beautiful large specimen of *Forsythia viridissima* in full bloom.

But let us return to the *Wild Geraniums* again. We left off a fortnight back with *crasseuule*, the best and purest white species for the cross-breeder, and, I regret to say, the scarcest one of them in Europe. I had a plant of it in my hands two years ago, and the only one then in England, and probably on this side of the equator. It was in a public establishment, but not in a nursery, so I must not name the place, for fear of the trouble it would cause by so many sending to ask for cuttings of it. But if I hear of it getting into the trade, or of being in the trade, I should name the firm at once, for I hold it to be no favouritism to name a nursery where a very rare plant, like this, is to be found. It was on this principle that I named the nursery at Foot's Cray, in Kent, the other day, where *Oenothera speciosa* is to be had on sale.

Fulgidum.—This is the only real scarlet geranium yet introduced of its class, let us say the *greenhouse class*, to distinguish it from the "Cape scarlet," or bedding class. It is a very thrifty plant, and very easy to manage, also

very hardy, and not uncommon in the nurseries. It comes into flower in May, and after two months, it likes to go to rest for the season, like many more of them when grown in a pot, but plant it out on a good south border, about the end of May, and it will go on flowering to the end of the season. I left it in bloom at Shrubland Park at the end of last October, where it stood three years, but I had no cross from it, having only tried its pollen on one or two of the fancy sorts, which did not take effect, but that is of no moment, as we all know it to be a ready breeder with several of the sections. The most popular cross at present from *fulgidum* is *flexuosum*, the pollen parent being *sapefloreus*, and the seed-bearer *fulgidum*.

Here I must remark, that the first grand error into which the last race of cross-breeders, or florists, had fallen, was by letting in the black spots through *reniforme* into this scarlet strain. These black spots, small though they were at that early period, have gone on increasing ever since, and deprived us, at the present day, of splendid large clear scarlet blossoms on our greenhouse geraniums, that would equal, if not eclipse, the brilliancy of *Punch* or *Tom Thumb*. Only think for one moment of the thrill and sensation that would pass through the gardening mind of Europe, Asia, Africa, and America, if Mr. Beck, or Mr. Hoyle, or any other of our great breeders, were to bring up for exhibition next May a seedling florist's Geranium, four feet in diameter, and loaded with flowers as large as those of *Ajax*, and of as brilliant a scarlet as those of *Tom Thumb*, or any of that race. Why neither *Ajax* nor *Achilles* himself created such a stir before the walls of Troy; and yet the thing was, and is now, as easily to be effected as to have marked the three front petals of *ocellata* with darkish spots, provided that our forefathers had understood the effect of mixing the breeds of these geraniums in their day as we find it to be at the present. Therefore, admitting this to be the truth, or at any rate, to be a feasible theory, why not go back thirty or forty years, and begin afresh with *fulgidum* and *cortusae-folium*, or *sanguineum*, on the one hand, for scarlets; and then, if *sanguineum* left traces of the dark streaks around its own eye on the offspring, endeavour to wash them out by the pollen of *echinatum*, or better still, by that of *crasicaule*? Cross and recross in this strain, always rejecting every seedling which shows a dark spot, or dot, or streak, until you have gained your size and form in scarlets, pinks, or French whites; and if you find the original brilliancy of *fulgidum* getting on the wane, cross again with *fulgidum*, not taking any thought about what is said of crossing in and in, for that is a dark lantern. This second turn of *fulgidum* will assuredly destroy your fine shapes, because the flowers of *fulgidum* itself are, perhaps, the worst shaped of all the Geraniums. A tyro might be excused for calling them *ringent*, that is, gaping like a Snapdragon; but then the scarlet colour is so pure in them, that we cannot dispense with it, and the shape will fill in by degrees in after generations. Pure whites, clear scarlet, and bright pinks, will never hurt each other in crossing, if no other tint or colour is allowed to affect them down from the original wild species; but from the moment you admit the least dark spot or speck, or the faintest shade of purple or lilac, into this clear strain, you are never sure of it afterwards. The foul stain, like what they call idiosyncrasy, will pass from father to son, and from mother to daughter, in a way you know not, and may reappear long after you had plumed your feathers on your successful efforts at washing it out and getting rid of it for ever.

Sanguineum.—This is the next best scarlet after *fulgidum*, but not so easily to be met with, as they sell quite a different kind in some nurseries under the same name; a kind with dark purple flowers. The true *sangui-*

neum, figured by Sweet in his *Geraniacea*, has clear scarlet flowers, with dark streaks or veins radiating up from the eye, but the scarlet is not by any means so rich as in *Fulgidum*. I never saw this geranium in flower, and I am not quite sure that I ever saw the plant at all, three times I was disappointed by having the dark purple one sent me in its stead, but I cannot be mistaken in the description, for I took it from a very long one by Sweet himself, with the coloured figure lying before me. He says it crosses more readily than any of the family, and names some of the best seedlings he had from it, but as they are now all lost, I shall pass them over, and say, as I do not know where to buy the true *sanguineum*, I should feel very grateful for a plant or a cutting of it from any one.

Bicolor.—This is a common species with the flowers in stripes, as in *Sidonia*. They are purplish lilac and white; its habit and constitution are strong, and the leaves are large, coarse, and curly. There is a very pretty cross by its pollen with *triste*, which people take to be a wild species, called *quinquevulnerum*. *Triste* is a poor thing, and although the pollen of *bicolor* got such a good cross, it was an extreme cross, and stamped the constitution of *quinquevulnerum* so delicate and tender, that some gardeners cannot grow it. Mr. Jeffries, at Ipswich, used to have it quite healthy, growing in nothing but peat, and Mr. Barnes, of Stowmarket, prefers peat for all the more delicate ones, whether species or varieties. *Bicolor* should be set apart specially to breed striped flowers from. *Sidonia* and *Spleenii* produce pollen, and if it would fertilise *bicolor* we should soon have a new race of riband flowers. I recollect, many years ago, a seedling, called *imbricatum* by Sweet, being sent, I think from Lee's Nursery, to Altyre, for the late Lady Cumming Gordon, with flowers exactly like *bicolor*, but nearly twice their size. This plant made a sensation among the gardeners round Forres, of which I, then a boy, had more than a full share, for I had my ears pulled desperately by the present proprietor of Altyre, for nibbling seeds from it, which I crossed myself, unbeknown to any one, and I thought my little heart would burst when they took the seeds from me, and threatened to send me to prison. Besides, add to this the banter of the rest of the men, who called me *Nibblyanum* while I remained with them, and it will be clear that I shall never forget the breed of *bicolor*. The first cross from it, *quinquevulnerum*, yields no pollen, and never seeds that I know of.

Gibbosum.—This is also a well-known species, and common in gardens, with small, dull, greenish-yellow flowers, which turn very sweet in the evening, like the Night-smelling Stock. It makes a good summer plant out on a mixed border, on account of its fine, healthy, sea-green leaves. It will give curious crosses, some of which inherit the property of being very sweet at night. One between it and *sapefloreus* was a great favourite with Mr. Sweet, who named it *Vespertinum*.

D. BEATON.

TRAINING PELARGONIUMS.

THOSE intended to bloom in May and June must have no more stopping, but must be trained into their desired shapes. So long as the flat bonnet-headed system of growth is fashionable, it is impossible to support them, and carry large plants about, without the aid of a number of sticks. A number of years ago, I thought I had hit on a wrinkle—when on putting a cord round the rim of the pot, and fastening the lower branches to this string, I could dispense with a great portion of the sticks; but lo! the first large nursery, where they grew large specimens in, that I visited, I beheld the same plan in full operation, though they owned they never tried it before that year. I believe it is a very common

thing that the same idea strikes different individuals at the same time. Simple as the string round the rim appears, it was the first step to the discarding of the forest-stick system. - I have used cord and wire for this purpose, and each has its advantages and disadvantages. Unless twisted and tied tight, both are apt to slip down the pot. This is totally prevented by fastening one or two pieces to that round the rim, transversely across the mouth of the pot, thus dividing the space into semi-circles, or quadrants. These cross lines are useful for fastening shoots to them. This is more especially the case when, by placing a stake in the centre of the pot, these crossing lines are raised a number of inches to the stake, twisted round it, and then fastened to the rim on the opposite side. This repeated, so as to have two transverse lines equi-distant from each other, will not only keep the stick firm in its place, but these crossing lines, either of themselves, or as the skeleton of an invisible trellis frame, would render a great number of sticks totally unnecessary. Small copper wire I consider the best for this purpose, as when one set of plants were done with, it would be equally fit to commence a fresh series. The great outcry against sticks, however, will, I believe, drive us to the pyramidal instead of the round flat-headed mode of growth. One stick in the centre, and a ring round the rim of the pot, will then be sufficient. We shall not be able to get large specimens quite so early as by the stopping and keeping-the-heads-close mode adopted now, but the little I have done in this direction convinces me that the pyramidal mode will be by far the most elegant and interesting. This holds true not merely as respects *Geraniums*, but every other plant, where the natural mode of growth does not indicate a different treatment. While sticks are to be used, let our friends choose the smallest and least conspicuous. Small willows, one year old, answer well. I use for all these slender purposes the shoots of *Fuchsias*, after they have been exposed to frost, in beds, out-of-doors. In small places, a bed of *F. coccinea*, *virgata*, *Thompsoniana*, &c., always looks well; and if allowed to be rather crowded, the fine lot of small stakes yielded in winter, will be found no drawback to their summer's beauty. In many places, little sticks are as difficult to get as little plants. The mode pointed out may save many a *whittling*.

The second lot of *Pelargoniums*, stopped some time ago and pot-bound, may now be shifted; they will bloom in June and July. A younger lot should be stopped and shifted successively for late summer and autumn display. Small plants grown on now will bloom usefully in the autumn; or, in poor soil, will be useful for vases and baskets, as a number of small plants are more useful for such places than larger ones. The soil should be light sandy loam, with a proportion of peat or leaf-mould, if come-at-able, so as to be moderately rich; but, as a general principle, all excitements to vigour, in the way of top-dressings and manure waterings, should be given after the bloom is set, and not before.

R. FISH.

CULTURE OF NEPENTHES.

(Continued from page 356.)

SUMMER MANAGEMENT.—The specimen alluded to in a former number was grown plunged in a bark-bed, yet that is not indispensable. They thrive equally well plunged in a bed of moss, provided it is placed over a flue, or some hot-water pipes, and kept constantly moist. The fact is, they require bottom-heat, and of a moist quality, no matter how it is generated—whether by tanner's bark, fermenting tree leaves, by a tank of hot water, or by flues or hot-water pipes—covered with a bed of moss deep enough to reach up to the edge of the pots in which the plants are growing. Whoever has

any of these means of generating a moist bottom-heat, may grow the pitcher plants. We have seen them grown moderately well set in a pan of water in summer over the pipes, and such growers as may not have the above-named means of bottom-heat may still grow them, if they have heat enough in the house, by placing the pots in a pan of water two inches deep, and covering the surface of the compost with green moss. During this season of the year (summer) they should be frequently syringed, in bright weather as often as three times a day, and the air around them should be kept very moist—almost at dew point. They require, also, the roots to be moist, but not actually flooded with water.

The pitcher plants are found in the close jungles of India, where the sun scarcely ever penetrates; but the cultivator must remember that the light in tropical countries is most intense. In our foggy island the light, even in the clearest day, is very many degrees less bright than in that country. Hence shading is only required because our pitcher plants are obliged to be grown under glass, which may form a lens for the rays of the sun, and thus burn the leaves. This shade is best made of a kind of canvass called "hunting," stretched over the glass when the sun shines strongly, which will generally happen from ten in the morning to three in the afternoon. It is of not much consequence whether the shade is placed inside or outside, excepting that it lasts longer on the out.

TRAINING.—If the pitcher plants flourish as they ought to do, they will grow rapidly, and require support. Place an upright stick pretty nearly as high as the roof, tie or nail some pieces of deal two feet long across each other—that is, the lowest one points east and west, and the next one north and south, and so on to the top. These may be placed at eighteen inches apart, and are to support the leaves and pitchers, and arrange them in a symmetrical manner. This trellis, however, can only be useful to free-growing species, as *Nepenthes distillatoria*, *N. Rafflesiana*, and such-like. A simple upright rod will be sufficient for the slower and weaker-growing species.

INSECTS.—Generally few insects are injurious to these plants. The *Brown scale* sometimes attacks them, but is easily got rid of by a sponge dipped in weak tobacco water. This is best applied in early spring.

WINTER MANAGEMENT.—As the days shorten, shade may be dispensed with, and a much less quantity of water will be required at the root. Syringing may still be performed in the morning, excepting in severe frosty weather. In mild winters more syringing may be given. Heat may be lessened 5° night and day, and thus the plants will have a slight cessation of growth, or, in other words, a degree of rest, enabling them to produce a stronger growth and larger pitchers the ensuing year.

T. APPLEBY.

(To be continued.)

THE ROSE FOR EXHIBITION.

(Continued from p. 371.)

SOIL.—In our last we described a rose garden, its desirable situation, shelter, and draining; and, now, the soil claims our attention. The most ignorant cultivator is sensible that this is an essential point in the culture of any flower. Unless the soil is of the right kind, it is in vain to expect success: the situation may be happily chosen, the garden well sheltered, and properly drained, but if the soil is thin, poor, and light, the rose-trees may exist, and even flower, but they will be weak, and the blooms small and ill-shaped. If, then, the soil in the favoured spot is of such a description as not to suit the Queen of flowers, means must be used to make it so. This leads to the question, what is the best soil

for the rose, to grow it to the highest perfection? Extra pains are taken with the soil for vines, pines, peaches, &c., to cause them to grow strong, and produce large quantities of blossom, and to swell off the fruit. Now, though the fruit of the rose is comparatively of little consequence, yet the same attention must be paid to the soil as though fruit were required. The rose gardens in Hertfordshire have a soil naturally favourable to the growth of the rose; and the soil has a deep, rather strong loamy texture. The consequences are, this flower thrives there better than in any other county in England. This is a fact indisputable. The doctrine is true, that we ought to observe the circumstances that attend plants in places where they thrive well, and endeavour to imitate those circumstances; therefore, if the rose thrives well in the deep loamy soil of Hertfordshire, we ought, to ensure the same success, to imitate it. If the soil be thin, poor, and light, remove it entirely, and replace it with good sound loam from a meadow, at least to the depth of eighteen inches, or even more, if possible. Then, in addition to this sound strong loam, add a good dressing of well-rotted cowdung. Turn the soil over, and mix the dung with it thoroughly. This should be done about the month of September, or, at the farthest, by the middle of October it ought to be finished. This gives a little time for the soil to consolidate by the time the trees are ready to be planted—that is, when the leaves begin to turn yellow.

PLANTING.—The season for this operation depends in a great measure upon the mildness of the autumn. Numbers of perpetual and hybrid varieties continue to grow and flower till a severe frost puts a stop to them.

It is a very good plan, where practicable, to go to a nursery when the roses are in bloom, and, whilst there, to mark the trees intended to be purchased at the taking-up season. By so doing, good, handsome trees will be secured, as well as the best-formed and highest-coloured flowers. In choosing them, regard must be had to the intended mode of planting, and the way they are to be arranged. If a garden of roses be formed in the manner described in our last, the trees will be planted in three rows on each side of the walk. The row on the north side should be the tallest—say five-and-a-half feet from the ground to the place where the bud has been inserted. The row next to that should be a foot-and-a-half lower, and the front row a foot lower than the centre one. The three rows will then be respectively five-and-a-half feet, three feet, and two feet. Then the rows on the south side of the walk should be, the first, three-and-a-half feet; the second, two-and-a-half feet, and the third; one-and-a-half foot. The reason for having these rather lower than the others, is to admit the rays of the sun more freely to the whole, which would not happen so well if the south side trees were so tall as those on the north side. As nurserymen work their roses of various heights, the required sizes may be easily procured in any quantity.

The trees having been fixed upon, let them be taken up as soon as the wood is ripe, and carried home, securely packed (the roots in damp moss, and the tops tied well together), as quickly as possible. Unpack them, and if the roots have become dry, dip them in puddle. This is made of fine earth and water mixed together, to the consistence of batter, in a hole in the garden. Dip three or four together in this puddle, and then lay them in the earth by the heels till they are planted. Take only a few out at the time, and expose the roots as little as possible to the parching winds. Stretch a line, five feet from the hedge, the whole length of the back row, and with a spade mark the place for each tree, leaving a space of seven or eight feet between each, then bring the trees, four or five at a time, lay one to each place, and dig a hole large enough to allow room to spread the roots equally out on all sides. Do

not, by any means, plant them deep, that is, only cover the roots nearest the surface about two or three inches with soil. If it is thought desirable to mix the colours, attention must now be paid to that point; also, let summer roses and autumn roses be judiciously mixed; this will give a show of bloom in every part of the garden through the season. Paying due attention to these points as the planting proceeds, let the work go on as quickly as possible till the back row is finished, then stir up the soil that has been trampled upon a few inches wider than the next row, stretch the line again, six-and-a-half feet from the back row, and proceed with the second; plant the trees in this row exactly opposite the centre of the space between the trees in the back row. Do the same with the row next the walk, and then plant the south side. This will complete the operation, excepting staking. Stakes are needful, especially the first year or two, till the trees are firmly established.

T. APPELEY.

(To be continued.)

ON SEEDS AND THEIR GERMINATION.

If we take a leaf out of that most instructive of all books, the Book of Nature, we shall see that our treatment of seeds is, in many cases, at variance with the practice there given; so that the successful result of our labours is more due to other circumstances than to the mode we treat the seeds. But, to make our meaning more clear, let us examine a wild plant (say a weed), luxuriating and flowering with all that vigour and beauty which none but a botanist can see; let us witness that flower fade—the pod or capsule protects the seeds until they have arrived at that degree of maturity necessary to enable them to nourish another plant while in its infancy. Now, this same seed-pod, or other receptacle, continues its services up to the time the seed is shed on the ground, which is generally done in dry weather, and the first rain usually sets the future crop in motion; or, if that ground should happen to be moved, so that the seed which at first was deposited on the surface becomes now buried, perhaps several feet in the earth, still that seed retains its vitality there, and a re-exposure to a position favourable to its development witnesses it start into life.

We all know that pertinacious weed, Charlock, is nowhere to be seen when the farmer ploughs his land, and sows his "Leut corn," but a walk over the fields in April displays this pest luxuriating in all its vigour, though then it may perhaps be a little behind the corn in apparent size, but its more rapid growth soon puts it on a footing with the more legitimate crop; so that the middle of May finds it displaying its gorgeous flowers in triumph over its more useful neighbour. Well then, if no means be taken to eradicate this encumbrance, (and it is difficult to do so entirely) it ripens its seed so. But, be it remembered, a considerable part of this seed clings, with a pertinacity common to such things, to the pods or stems which produce it, and suffers itself to be carried and deposited elsewhere, and what does fall on the ground does not always vegetate if it be dry, but is often buried by the first ploughing after harvest, vegetates the following season, when the plough again brings it near enough the surface, but, it is true, a part of those so self-sown vegetate at once, if the season and other things suit them. But "nature" provides a second sowing in those seeds which still adhere to the parent plant, and which are so kept in reserve as to just be sown in time to perpetuate the crop of the following year. So well does the attentive farmer of some of our southern counties know this, that in fallowing his land in the early part of summer, he rather wishes for moist weather to "start this pernicious weed into growth,"

and then its destruction is more easily accomplished; while, in many other cases, where a perennial plant, as couch grass, forms the principal intruder, a dry season is the best to extirpate it. Although new seeds of charlock, &c., deposited in the ground, will retain their vitality there for a very long period, we must not confound this mode with the sowing of turnips, cabbage, &c., in dry, hot weather, and expect them to grow when at length rain does come; as we all know such seeds lose their vitality when subjected to such a baking in an unshaded situation. But nature does not do so, as she, with a parental affection for her offspring, retains them by her, and only turns them out in the world when the chances are favourable to their well-doing there. Now, in garden culture, we are compelled to depart from such rules; our tastes and wants induce us to sow and plant things to come into use at times the most unnatural, as well as that the most common to them, or, in other words, we endeavour to prolong the utility of every article to the greatest length of time compatible with its well-being; and, to accomplish this, we must humour or coax the plant we operate on to comply with our wishes, by securing to it as many advantages as our knowledge of horticulture enables us to point to, and not the least is the condition of the ground at the time the seed is deposited there, and to that we now address ourselves.

When a mild, wet winter passes away, the ground is usually left in a sour, improper condition for supplying the wants of a newly-germinated seed, and the consequence is, that such seedlings perish almost wholesale, or, it may be, the seed itself refuses to grow in such ungenial soil. Means must, therefore, be taken beforehand to alter and improve that ground, by judicious draining, digging, &c., and the usual period of sowing may be delayed a little, if the prospect of the ground becoming finer imply it advisable; and, previously to sowing, the surface only of the soil should be stirred; if done deeper, the chances are, that there will not be time for it to get pulverized, and much depends on this, as we have seen excellent crops of seedlings on ground very obstinate to deal with. But by timing the digging by that shrewd knowledge of coming events, the cultivator contrived to have everything in season, while a single spadeful of soil turned over in May, displayed in an unmistakeable manner what difficulties he had to contend against. Now, it sometimes happens, that a succession of wet weather prevents our getting on land of this description, besides, our doing so must be hurtful to it; we therefore, in such cases, sow our crops on beds, treading only on the alley. This especially refers to *carrots*, *onions*, *beet*, &c., and contrive to have some fine soil for the top, of a kind not likely to get caked by heavy rains and subsequent dry weather; as a preventive to which, we generally add some material of an opposite nature, as clean-sifted coal-ashes, or, what is better, charcoal-ashes. This latter substance has of late years become very fashionable; but its use as an auxiliary to the onion-bed is, we believe, coeval with its first production, and its utility in that respect was made known to the world through the pages of the Horticultural Transactions, some twenty-five or thirty years ago, by Mr. Smith, then gardener to a gentleman residing in one of our northern counties.

We have seeds to sow at other times than the spring, and to get these seeds to vegetate at Midsummer, or more difficult still, "the dog-days," some little trouble is often encountered, more so in the south of England than in the north of it, unless the season be extraordinary; but in meeting this case we must take another leaf out of that inestimable volume "the book of nature," and, copying her directions, we must try and sow our seeds on some shady place, otherwise interpose some obstacle between them and the bright glare of sunshine they are

opposed to; the latter is by far the best, as it can be removed when its uses are no longer necessary, and the young brood will be all the better for the increased daylight. As an example, in this case, we generally cover our beds of new-sown cabbages, lettuce, endive, cauliflower, &c., with pea-boughs, or other partial shading material, which, allowing the sun to play amongst them, partially obstruct its direct rays, and prevent them scorching the young plants too much, or rather preventing the seed germinating at all. Now, at that period, the state of the ground is less an adjunct to success than a congenial atmosphere, as the latter plays the best part in securing a progeny. Now, our shading in this way is neither more nor less than is done daily in nature. A plant sheds its seeds, which, falling where the shade of its "perhaps expiring parents" performs to it their last duties—that of protecting it from the sun's too violent action—vegetate in due time. In ordinary garden cultivation, this shade is not necessary in spring, as we rarely have such an amount of sunshine as to render it necessary, and what we do have is congenial rather than otherwise, by warming the earth, and drawing to the surface some of that moisture with which the ground is charged below; but a fine state of tilth is, nevertheless, necessary, as by it the seed finds a bed and food, both suitable to its wants. While we here urge on the propriety of having a few inches of fine surface mould to start our seedlings on, we by no means infer that culture should stop there; on the contrary, the ground for all vegetable crops ought to be properly loosed and broken up, for at least eighteen inches deep, in order that, as the hot weather sets in, the roots may find their way downwards with facility, as the drought and lack of food compels them to do; but this understratum need not be so fine as the few inches at top, where the seeds are deposited; it is generally sufficient if it be roughly broken, sweet, and have been dug in dry weather. So convinced are we that deep cultivation is essential to success in all gardens lying dry, and subject to the punishing effects of summer sunshine, that we would almost as soon put in a crop without manure, as without making sure that it has sufficient depth to send its roots to collect food, when a scarcity exists near the top. But, as our object was an elucidation of the conditions calculated to ensure a good healthy vegetation, we may remark that on one or two cases, the season has an effect on young seedlings not known to every one. First of all, we may say that *carrots* are tender, as independent of its seeds' unwillingness to germinate until late in the spring, it is a delicate plant, and a very little amount of frost kills it, as we never saw carrots sow themselves as other things do. Then, again, we have young *turnips* which, if sown too soon, and receive any frost while in the seed-leaf, the plant, though it continues to grow for some time, yet eventually runs to seed without producing a single root. These two cases speak for themselves the propriety of securing to them some kind of a protection while in that state.

J. ROBSON.

THE GOLDEN AND THE SILVER PHEASANTS.

(Continued from page 374.)

SWAINSON has generically distinguished the Golden and Silver Pheasants from the Common, the Ringnecked, and the *Persicolor* or Japan species; and this proved impossibility of combining, or call it confounding, the species of his two genera, confirms at least their separation by a natural interval. What makes the incompatibility of such alliances the more remarkable, is the successful issue of the late Lord Derby's bold experiment. It has already been related in print, but deserves to be still more widely known than it is. The facts are briefly these. His lordship had obtained from Japan a pair of rare and beautiful pheasants, *Phasianus Persicolor*, or Diard's Pheasant, the first imported

alive into Europe; but before reaching Knowsley the hen died. She differed from other hen pheasants, in having brilliant spangles on her back. Her remains have passed into the hands of the Liverpool Corporation, with the rest of the Knowsley Museum. From observing its natural affinity, Lord Derby determined to place the surviving cock with a common pheasant hen. It cannot be doubted that these two species are as radically and primitively distinct, as the jackdaw and the rook, or the rabbit and the hare; still, half-bred young were produced. Next year these half-bred hens were placed with the original Japanese bird, and again young were obtained, still nearer approaching to their Asiatic parentage. The catalogue of the Knowsley sale gives a table of these various degrees of consanguinity, the nearest being scarcely, if at all, distinguishable by the eye from genuine and thorough-bred *Persicolor* pheasants. The various degrees, too, as far as was tried, were capable of interbreeding both with each other, and with either parent stock. Those, however, most approaching to the common sort, were not further cultivated, but were turned off into the woods. Those which take most after their exotic ancestry are, it may be supposed, of considerable value, both from their rarity and their interest.

This is only one of the many problems which might have been worked out, had not the course of nature, and the hour which comes to all men, abruptly terminated the many interesting inquiries that were dependent on the life of the noble lord. It would indicate an unwise, perhaps an irreligious, temper to express regret at changes which the course of time brings about. To different men, different pursuits and a different career is allotted. All cannot be statesmen, all cannot be naturalists or cultivators of the elegancies of life. Enough, if *what* a man puts his hand to do, he does *it* with all his might, and in a worthy spirit. Of the late Earl of Derby it may be said, that his princely menagerie, now dispersed, was no show affair for ostentation's sake, but that he cultivated it and studied it, with the diffident and cautious spirit of a learner, to the very last. His mind was clear to observe, and quick to appreciate, the value of facts that would have escaped ordinary lookers on. He was ready to communicate, and liberal in bestowing, both his knowledge and his superabundant specimens to such persons as, in his discretion, he deemed worthy of the favour. And though of late years much withdrawn from society by age and grievous bodily infirmity, his amiability and cheerfulness caused a deep regret at his loss. "Dear Lord Derby!" feelingly wrote one who knew him long and well, "he never made an enemy, and never lost a friend." D.

PRACTICAL OBSERVATIONS ON THE MANAGEMENT OF BEES.

By Henry Wenman Newman, Esq.

SWARMING.

(Continued from page 375.)

I OMITTED to mention, one of the symptoms of a swarm being ready in some of the hives is, when scouts are seen busy at an empty hive going in and out. If the hive has no vestige of old combs, it is a most favourable sign; but, frequently, when *old combs* are left in a hive, bees will come to plunder them, even although they contain no honey. I have known many swarms enter the leads of an old church; in this case nothing but the fumes of tobacco will displace them. By the way, the smoker will be pleased when it is told him that in all dangerous operations there is nothing so good a preventive of stinging as a cigar, or a tobacco pipe, in the mouth of the operator.

One swarm I had in 1847 went off with two queens, one of whom fell short on the ground; she had but a very few followers. On taking her up, I found that she had defective wings. I tried to place her in two hives which had not swarmed, but she was rejected by them all. I then tried her with the new swarm, but they would not receive her. I then returned her into the original hive where she came from, and she remained at the entrance of the hive a long time, with a large crowd of bees round her; after a long consultation the bees let her drop from the bunch of bees, which did not hurt her; none of the strange bees whom she was placed before attempted to do her much harm.

The same year I had a swarm came off and settled on a tree, they did not remain long, but went back to the hive. I suspected they had lost their queen; the second day my man found her dead body, surrounded by about a dozen bees; and some bees visited the spot for three or four days after! Such is their veneration for their queen.

In a newspaper I saw an account of a swarm which came off on the 31st March. On particular inquiry, I found out by a letter from the owner to me, that the bees had deserted their hive, having had their combs destroyed by moths.

In all the matters concerning swarming, the bee-master ought to be as cool and collected as possible, for the bees will seldom sting at this time; and, as I have observed before, I find it the best mode, having a large garden, to place the swarm within a yard or two of the place where they settle; as, by these means, scarcely a bee is lost, and their labours are not interrupted by removal to a distant spot.

The earliest time I ever knew of a swarm in Gloucestershire was the 30th April, and the latest the 15th July. In the Island of Jersey I was present at a swarm coming off on the 1st August.

It is of little use to place hives in the garden in time of swarming. I have often had several empty hives placed in trees and bushes when my bees have been ready to swarm, but have never once found them to take possession of one of them. I have often seen bees looking out for a place during swarming, or, what some writers term sending out "spies and quartermasters." I had an old hive full of combs, which was deserted; the bees came about this for several days, but, strange to say, after all a swarm went off, and they alighted on the under part of the stand, and never entered the hive at all.

I have never yet, as far as my own experience goes, found a swarm go off to take possession of some hole or corner, without first settling, near the parent hive, on some tree or bush; nor can I learn from any bee-keeper that they ever did. I had a stock of my own which once deserted the hive and took possession of a chimney. I had been playing tricks with them, by cutting out nine-tenths of their combs.

The swarming generally commences about the middle or end of May, when the country is in all its beauty and clad in its loveliest attire. It ought to end by the middle of June.

"Oh month of many blossoms, thou dost come
In all thy summer beauty, like a bride
Whose hair is wreathed with roses; the gay hum
Of bees doth greet thee; thou hast well supplied
The busy labourers with a countless sum
Of flowers, expanding now on every side
To thy sweet breath, in garden, mead, and vale,
On mossy bank, wild heath, and wooded dale."

J. DAY.

A few years ago a swarm came away from one of my hives and settled on the branch of a high tree. After a great deal of labour and time they were hived, but appeared very restless. Next morning I visited them early and found them working, but on looking under the hive, I found two young queens lying dead, which the bees had killed and thrown out: consequently no less than three queens went out with this swarm; it is quite plain, therefore, that during the swarming season a plurality of queens is permitted by the bees.

I firmly believe that the swarming is the grand marriage-day of the queen, and that she is so surrounded by guards on this occasion that it is next to an impossibility to discern the rites. When a queen has fallen short in swarming, you generally find her surrounded by about from twenty to thirty working bees, who will not desert her: the rest of the swarm search often in vain for her, and after a while return to the old hives. On one occasion, when a man in my employ, by accident, trod on a queen which had fallen short, and killed her, I discovered, three days after, a few bees in a cluster on the ground, and on examining it, I found the dead body of the queen which had been accidentally killed.

DRESSING OF AURICULAS.

THIS is not like dressing of dahlias, for there is no disguising. It is simply placing the pips edge to edge, which extends the truss to its full size, whereas, if they fold over each other, half their beauty is destroyed; still it is far better to adjust the pips as they open.

Small pellets of very soft moss, or cotton, placed between the footstalks, will spread the pips far enough from each other to allow each individual flower to expand fully without touching each other; and if there be more than eight pips, take the worst away. These may be the forwardest or the latest, for the one that blooms first is often inclined to fade before the rest are open. Then place the pips, as to distance, just as you would like them to be shown, and they will retain their places after the pellets are withdrawn, which, however, should only be after they have arrived at the place of show; the flowers will then, generally, maintain the places in which they have been growing for the last fortnight. The best-looking truss is seven; one centre, and six round it, will touch edge to edge exactly, if they are of a size, as may be seen by putting a coin on the table, and six others of similar dimensions round it, and this should be the state of the truss when exhibited. Recollect, however, that if the white or paste be cracked; if the colour break through the edge, or the edge break through to the paste or white; if the colour be not all alike, but shows paler at the edges, all, or any of these faults, are very detrimental. The pips should be sound; the white eye circular; the yellow tube circular; the ground colour and edge equal in width; the green, or gray, or white decided; the paste or white very smooth and clear, and the flower altogether perfectly flat. If you show a pair, let them be well contrasted, and both of a height, if possible; a green edge and a gray, form the best contrast. The largest pair we ever saw, was *Fletcher's No Plus Ultra* and *Wutner's Conqueror of Europe*. The best we ever saw was *Page's Champion* and *Grimes's Privateer*, but we scarcely expect to see them so fine again.

THE ANTIRRHINUM.

THE Antirrhinum has long been considered by us a weed not worth cultivating, unless it be by some determined amateur enthusiast, who will "elevate it to the rank of a florist's flower," not as we are going on now with miserable scratchy things, as if a dirty white, or something, was splashed over another dirty colour, but with something definite. When *Caryophylloides* was first put forth, it was hailed as a valuable, because it was a new, variety. It was strongly marked like a bad flaked carnation, but the character was new, and this one point has been pretty nearly the only one that any of the weeds since claimed; whereas, the old *A. pictum*, with its white tube and crimson lip, is worth all the lot raised since. It is essentially a border-flower, and should look bright at a distance. It is in its very nature too coarse to be brought near the eye, and is, therefore, not adapted for pot culture; all trumpery variegations, with spots, as if they had been peppered, are absolutely worthless. Selfs, unless distinct in colour, and that colour dense, are good-for-nothing. We want a broad lip, full of colour, a tube as much contracted as possible. If the tube be white, all the shades of red and orange and purple would contrast. If yellow, the darker the lip the better, but it should not partake of yellow—hence an orange, unless dark, would be a poor contrast; though, if a deep orange, it would form a tolerable contrast with a pale lemon-yellow. Generally, however, all the varieties are too near. A positive self is better than two colours near each other, and most of the varieties, even the best, are so blended, that it is a mere struggle between the two. In the border or bed, a self, scarlet, or crimson, or orange, would be acceptable; but two decided colours, one for the lip, the other for the tube, would look infinitely better. As the lip, however, exhibits the inner surface of the flower, which is velvety, and the tube the outer surface, which is smooth and waxy, the former should be large, spread out well, and conceal its divisions. Let he who determines on improving this flower, procure half-a-dozen of the very best—selfs and party-coloured, or even two or three—let one of them be *Pictum*, one the darkest self that can be had; another the best

yellow; one the brightest scarlet; one may be chosen for its size, so it be not striped or speckled, and from these, apart from all others, save the seed from which to procure finer varieties. Throw away everything at all inferior the moment the bloom can be seen, and from the best of this first batch of seedlings save seed to make another effort with. In the mean time, if the best be really an advance, such as *Pictum* on a larger scale, or with a broader lip, or any other manifest improvement, it may be worthy of a name, but it is only by this means we can hope to raise this now trumpery weed into a flower worthy of adoption by the British florist. Some persons may feel inclined to procure seed with a view to saving a year. They will have all their trouble for nothing. Seed grown for sale, and saved from general collections, will bring nothing worthy of the trouble they require, and preclude the possibility of saving any really good after the manner we recommend.

W. Soames.—The plant sent is not new. It is *Ceanothus Rigidus*, sent out years since by the Horticultural Society. The *Verbena* blooms are quite out of character. They will not even be the same colour when properly grown, but they do not promise much for form. The petals are narrow and notched. G. GLENNY.

BURNING RUBBISH, VERSUS CHARRING.

MUCH has been said of late of the value of charred materials for cultural purposes, and the cottager and amateur have been strongly advised to preserve everything likely to be of service in that way, or, in other words, to subject everything to the action of fire which that element makes any impression on. Now, it is far from my purpose to find fault with such a system, but there are some things connected with it that I cannot comprehend, or rather overcome, without incurring an amount of labour more than commensurate with the value of the article obtained, and I have, therefore, in many cases, taken another course with the refuse materials which, in every place, accumulate at the rubbish-heap.

In dissenting from those who advocate charring everything that comes in their way, I do not, however, by any means assert that a heap of refuse chips, &c., in a carpenter's yard, or bundles of gooseberry cuttings, and similar small ware, may not all undergo the action of fire, without being consumed, and in their altered condition confer a greater benefit to the land than they could have done in any other form; but, then, are we not to reckon something for the trouble of charring, to say nothing of the vexation of trying and failing to do it, which it is ten to one but the inexperienced will fall into on his first attempt? But the materials above-mentioned form the best and earliest portion of the catalogue of things we are told may undergo the operation of charring, they being (when not saturated with moisture) of a highly combustible nature, and, after being manufactured, are of a portable size. Not so, however, the barrow-loads of cabbage-stalks and other vegetable refuse, which can only be expected to burn by the aid of a better kind of fuel, so that it becomes a question whether that fuel is properly applied when put to such a purpose. Now, we have so often miscarried in our attempts to char substances thus difficult to consume by fire, that we are inclined to call in question the doctrine which insists "on charring everything and burning nothing." But suppose we take a little wider range, and bring to our heap (what is very often brought there) the stumps and roots of trees, ugly, awkward remnants of shrubs, and other things of that sort; might we ask if we are to be at the trouble of cutting all these up into pieces suitable for digging into a flower-bed, or putting into a flower-pot? Most certainly not; unless for the latter purpose, we think they would be too costly to be done to any extent. What, then, is to be done with these stumbling blocks, are they to be burnt to ashes as they lie? To that we also reply a most decisive "No;" and now proceed to detail the purpose to which we have applied these odds and ends.

In the first place, we must say that the locality where we adopted the following course abounded in loamy clay, and was in an out-of-the-way-place, where that material could be

had in any quantity, so we collected all the roots, stumps of trees, and such other rubbish as was useless elsewhere, often including such things as old knarly thorns, roots of forest trees, and anything in that way, not forgetting a little dried wood to make a beginning with. Thus having all things in readiness, and fixing on some level place for the hearth, we first of all prepared what we think the most important agent to success, and which we have sometimes seen neglected—"the air drains;" these we make by cutting out two small furrows or ditches, about five or six inches wide and the same deep, cut so as to intersect each other exactly where the centre of the heap is to be, and which consequently will be like a cross; these drains we cover with stones or bricks, and in the centre raise a few more in a sort of heap; the utility of these flues or air-drains will be apparent to every one, as they supply the interior of the heap with that necessary element in supporting combustion, "Oxygen," without which the progress is slow and uncertain. Having prepared the air-drains in such a way as to prevent their getting choked up, we next prepare the fire-heap by laying on the dried wood, and some of the easiest managed pieces amongst those lying there, and having some of the clay ready dug and lying handy, it is better at once to set fire to the heap (which we presume was made tolerably solid), rather than wait for a large heap to be made. After it is fairly lighted, lay on carefully some of the lumps of clay, which is best done at first by hand, as the small or broken part which is thrown on by the spade is apt to choke the fire when newly made on. After a good quantity of that is on, lay on some more wood, *i.e.*, roots or rubbish, and then more clay, observing not to overdo it at once; it is better to leave it, and return a few hours afterwards and add some more. This process may be continued for any length of time, as the process of combustion is necessarily so slow under such circumstances that we have often kept it going for several weeks.

One thing we strongly urge the inexperienced operator against, that is, meddling with the heap in any manner, until he is satisfied with the quantity he has; he may keep adding as much as he likes, but he must not thrust in sticks, or try his shovel in the burning mass; such interference deranges those processes going on so favourably inside, that we press on him to exercise his patience until the whole be done, and then he will have a mass of matter, red in appearance, and, we need hardly say, invaluable in its effects on all crops to which it may be applied, besides those huge ugly stumps, which, if they had been only charred, would have been greater nuisances than before, are here converted, like the clay, into a nice handling material, available and ready for all purposes, and gratefully acknowledged by all crops (peat or bog plants perhaps excepted), besides which very important matter, the labour and trouble is not great, and the satisfaction of being able to make such clumsy and rubbishy substances subservient to so useful a purpose, and that without much labour, is, of itself, a recommendation to our plan, and to the amateur, who may be making alterations around his premises, and who finds all his back ground crowded up with such cumbersome substances as we have been enumerating, will find it to his advantage to dispose of them as we have directed, and we have no question but that in the end he will wish his stock had been a larger one.

S. N. V.

TO CORRESPONDENTS.

*. We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of the Cottage Gardener, 2, Amen Corner, Paternoster Row, London."

WHITE CLOVER (*S. Tomlinson*).—The production of white clover in a field recently manured with bone dust, though no seed had been sown for many years, is not an unusual occurrence, if the field is trenched or ploughed deeply, so as to bring up a fresh soil to the surface. The seed will remain uninjured buried in the soil for centuries. After the Great Fire in London, when the old houses were cleared away, white clover came up abundantly. It had no connection with the bone dust in your case. *Winter vetches* will not do for spring sowing. Your other question next week.

TO PRESERVE PLUMS AND SMALL FRUITS.—W. J. sends the following in answer to a recent inquiry:—"They must be fresh gathered, put

into strong bottles, and just covered with cold water, then well corked with good corks, firmly knocked in, and tied over with strong string twice, in the manner of soda water, so that the rarefied air shall not move them. The bottles, corks and all, are to be immersed in a water bath (a saucapan of cold water), with a little hay at the bottom, to prevent collision, the bath to be gently heated to 180° by a thermometer. When arrived at that heat, immediately remove all from the fire, and let the bottles of fruit cool in the water. When cold they are done, and will keep any length of time. The air has been forced out through the cork by the heat applied, and cannot re-enter, the external pressure not being sufficient."

NIGHT SOIL (*M. M.*).—The "constituents," or as gardeners say, the virtue of the night-soil we recommended for Roses, can "be obtained in a less disagreeable form," perfectly free from bad odour, by fixing the ammonia, which gives it pungency. The best mode of doing this is by having it mixed in the following proportions:—Two parts night soil, one part gypsum, and one part peat charcoal.

PRUNING ROSES (*Ibid*).—The *Malmesbury* Rose should always be pruned quite close, and the *La Marque*, being a strong Noisette, should never be pruned close after it is well established; but you may apply our general rule of reducing two-thirds, from the last season's growth, of the strongest shoots; rather more from the next size, and the smallest side-shoots cut to three or four eyes.

ZINC CHURNS.—L. J. P. writes as follows—"I think your correspondent J. B. L., of Feb. 26th, does not do justice to 'the Sussex zinc churn,' as I have had one in constant use for the period of three years, and it is now as good as new, and has never required repairing; therefore, as J. B. L. says his is leaky, although not used long, I should conclude it must be from want of care in the servant who churns. I have now tried every variety of churn, including the American, and none will answer like the zinc, provided it is properly managed; but very few servants will attend to the directions with regard to the cream being at the temperature of 60°, and such is the prejudice in the lower orders against everything new, that although the butter may be obtained in summer by this churn in fifteen minutes, and in winter in thirty to forty minutes, yet they will prefer using the old barrel, or any other old-fashioned churn, although they are seldom less than an hour in summer about the process, and in winter six or seven hours, or, perhaps, all day, when the butter will be so rancid and bad, from being so long about, that it must be thrown away. My dairy-maid has to-day (3rd of March) got the butter churned in about thirty minutes, although it was freezing hard last night; but she brings the cream into the kitchen over night, by which means the temperature is much increased, and then she puts boiling water into the zinc basin upon which the churn stands, and this has no effect whatever upon the taste of the butter; and while our neighbours are labouring at their old barrel churn from six in the morning till perhaps six in the evening, we, with our 'Sussex zinc,' have not only made our butter, but are eating it. There is hardly a dozen pounds of good butter to be got at any country market during the winter months, and although it is generally by the ignorant attributed to the cows eating turnips, it is much more often caused by the very long time the churning process has been about, putting boiling-water into the churn, &c."

INSECTS (*Uraster*).—The minute insects you have sent are one of the species of the restricted genus *Typhlocyba*, belonging to the Cicadellidæ. The majority of the specimens were in the larva and pupa state, the latter distinguished by their short rudiments of wing covers on the back. They may be destroyed by fumigation, in the same manner as the common green fly, or other species of Aphidæ. The red Curculio was most likely the *Apion frumentarium*. The females of *Chermatobia brumata* sit very close in the stem, and in the angles of branches of fruit-trees.—I. O. W.

CANARIES (*G. A. G.*).—In answer to your note, W. Rayner, Esq., says—"I beg to state, as far as my experience goes, I preferred birds of a year old to breed from, but they will continue to breed when five or six, or even more years old; but I find the birds always more vigorous and robust at the former age. I do not know of any work on the subject of breeding canaries that is not full of errors; I had two or three works, but gave them to my children, considering them worthless, and their titles I have forgotten. I used to turn a number of males and females into a room lighted by a south window, in which room a quantity of furze or green broom bushes were fixed against a wall. In a large net-bag, a quantity of clean, dry moss and hair was placed, so that the birds could select what they pleased to make their nests with. I used to feed them with chopped egg and bread-crumbs every morning, and fresh water, in addition to their usual seed, and by this simple means I have raised a great number, leaving them, as it were, in a state of nature; what may be done in a room, may be done with a single pair in a cage."

GRAFTING TREE-PONIES (*G. T.*).—Now is a good time to graft the tree-pony, and the best mode is that called the "whip or tongue grafting," that is, cut off a portion of the stock, as near the width of the cut part of the scion as possible; this cut should be about one-and-a-quarter inch long, and the cut on the stock should be the same length. Then fit them together, and when that is properly done, take the scion, and, at about half-way up the cut, make an incision sloping upwards, and about half-way through; then make a similar incision in the stock downwards, and immediately fit the tongue made by the upwards sloping cut on the scion into the cut on the stock, taking care that the bark of the one rests upon the bark of the other. Directly a graft is put on neatly, and fitted accurately, it should be tied to the stock very firmly. Place the plant in a cool frame; shade from sun, and shelter from cold. Keep it rather close for a week or two, until adhesion takes place, then give air, and treat in the ordinary way.

GRAFTING WAX (*Ibid*).—The following mixture makes a good grafting wax:— $\frac{1}{2}$ lb. of Burgundy pitch, $\frac{1}{2}$ lb. of rosin, $\frac{1}{2}$ lb. of bees wax, 2 oz. of tallow, melted together over a slow fire, and laid on upon the tying material whilst warm. If suffered to become cold, it is so stiff as to be useless for grafting purposes. It is very inflammable, therefore be careful that no fire reaches it whilst melting.

WINTERING PANSIES (*A. B.*).—The best way to keep Pansies is in pots, but not as you have in a frame. They are very hardy. The only

shelter they require is protection from excessive rain or snow, and this is best attained with hoops and oiled canvass. The best time to take off *Pensée* cuttings is about the end of July. They do not require any heat to strike them. Place them in pure loam, with a thin layer of sand on the surface, under a hand-light, behind a north wall; put in small weak cuttings. They will make roots in time to form nice little bushy plants, in 24-inch pots, before the winter sets in. You may increase them also by layers, in the same way as carnations. These make the finest plants.

BASKET OF GERANIUMS (An Amateur).—Towards the end of this month you may expose this basket of plants to the sun and air, in a warm sheltered place, if you provide a covering at night sufficient to keep the frost from them. Prune a little off the tops of the shoots, and any dead parts, and in two or three days after pruning, stir up the dry soil and throw part of it away, then give a good watering or two, so that all the soil gets some of it, and after that, say in another week, make a rich compost, and fill up the basket with it, and you need give no more water for three weeks. These geraniums which look so bad had better be cut down to the first live wood at once; if the roots and collar look black, they are dead.

BIGNONIA JASMINOIDES (Kate F.).—When this beautiful climber is allowed to grow luxuriantly, like yours, it never blossoms. When the roots are much cramped, and the branches allowed a large space and very little pruned, it blooms as freely as a rose from June to September; but it flowers much better in the open air; and if it were kept in a large pot, on purpose to be turned out *in the pot* every May, no plant would repay better. Do not repot your plant now, nor until you compel it to bloom, and never cut a twig of it till that is accomplished; but you may give it a fresh pot any time in the summer, whenever you see the blossom-buds clustering in bunches here and there. The small, smooth, sweet-scented-leaved geranium you lost, is, we think, the best variety of *Citrifera*, if the leaf was very thin, nearly round, and a little notched on the edges, and the flowers very small, very gaping, and nearly white. It is our own favourite of all the sweet-scented ones. Mr. Appleby could supply it, if you were to send him the name and our description, as there are six or eight kinds of *Citrifera*.

GRASS UNDER CEDAR TREES (L. H.).—You can do nothing better with it than scrape off the fallen leaves, and throw an inch or two of fresh soil over the whole; then sow hay seeds from the stable, and rake and roll it. This may last a few years, and the process must be repeated as often as the grass fails. Dissolve half an ounce of sulphate of ammonia in each pailful of your hard water.

KILKENNY ANEMONE (S. S.).—All that we want to know of this anemone is the proper name, and that we could find out if you were so kind as to send us a flower and leaf of it. The way to treat *Dielytra spectabilis* is to plant it out of doors early in May, and to take it up in October, and keep it dry like a fuchsia till January or February, then to water it, and set it in the greenhouse or frame, and it will soon be in leaf and flower. No plant flowers more freely if thus managed, and the soil is good. Any soil that will grow a geranium will do for it. The *Sponge Rose* is the earliest and the best to force of all the cabbage rose section. The bush is dwarf, and the flowers not large, but they are deliciously fragrant. The best *Yellow Calceolaria* is one called *Corymbosa*, but much depends on the kind of soil. We do not recommend *Salvia patens* for an edging to a scarlet geranium bed, it is entirely unfit for such a purpose.

RUSTIC FLOWER-POTS (S. Tomlinson).—In these, made from hollowing out knots of wood, and to stand in a window, put crocus, tulip, and hyacinth bulbs in them now. Let us know their size, and then we will give special directions; or including your case in an article or two seemingly required by our correspondents. We congratulate you in thus turning such things to account. Any thing looks better than red pots.

WINDOW GARDENING (Isa).—We are glad to hear you are so fond of flowers. Perhaps you have not had an opportunity of reading the papers on this subject by Mr. Fish and our other coadjutors; but whether you have or not, we will try and meet your case.

FEEDING BEES (A Subscriber).—If your bees are at all short of honey in their hives, begin feeding immediately. If you feed with barley-sugar, it matters not at what time of day you give it. If your straw hives have an opening at the top, give it them there, but if not, push half-a-pound of barley-sugar in at the mouth of each hive twice in the week; the barley-sugar must be transparent, and not at all grained or in crystals.

SIXTEEN BEST BEDDING PLANTS (A young Gardener).—We cannot undertake to arrange gardens.

HOT-WATER APPARATUS (Ab initio).—Your arrangement is very defective. Applying the heat at the side and near the top of your boiler is the very worst mode in which it could be applied. We can hardly conceive that by such a mode you could ever get any heated water into your tank through a flow-pipe forty feet long. If you ever succeed in communicating heat to the tank, it will be a very low temperature, for the circulation of the water must be at the slowest possible pace, as the heat to the cold return current has to be communicated downwards. The heat ought to be applied to the lowest part of the boiler. Heat is conducted downwards through water very slowly. You will also find your zinc pipes a perpetual source of annoyance by their leaking.

BINDING THE COTTAGE GARDENER (F. H. B.).—Cloth bindings for all the back volumes may be had at our office, Amen-Corner, Paternoster-Row. We believe the other work you mention is still publishing.

STYCAMORE TREES (T. W.).—After arranging a plantation, you want to occupy the ground under the boughs of some large stycamore trees with ornamental hardy trees or tall shrubs, which is next to an impossibility, if not quite impossible. In the first place, ornamental trees and tall shrubs will not grow at all under the shade of tall trees, even supposing you had them established there; but the ground is so preoccupied by the roots of the old trees, that you cannot establish a fresh plantation, even if the shade were in their favour. Try a mixture of tree-box, common laurel, spurge laurel, and the evergreen berberry round the sides. If anything will grow under your trees, these will.

GLASS FOR PIT (Sabrina).—The safest and most economical glass for amateurs to keep half-hardy plants in winter, and to strike cuttings in

summer, is *Hartley's Rough Plate*: taking the cheapest squares from the lists in our advertisement. This glass is warmer, a great deal stouter than the common, and it requires no shading, unless the pit is very shallow. Have nothing to do with ground glass.

CARNATIONS AND PICOTEES (Ibid).—It is very evident the soil does not suit these. All you can do is to renew them from layers every year; to begin early, so as to have strong plants, and to mix some fresh soil for them, if only the scrapings from the road in a dry state.

FLOWER GARDEN (S. S.).—Although this garden is in a wrong position in reference to the house, it is very well laid out. The first page of your list of planting would occupy all our spare time for one week. In large plans, the names ought to be on the margin, in the same way as the plants are intended to match or harmonise; or, better still, written on the beds. If yours had been so written, half-an-hour would finish our part; but, as it is, it would take us more than a week, if we had so much time to spare for one correspondent.

DUTCH EVERY-DAY LAYERS.—S. A. S. wishes to know where she could obtain eggs, or fowls, of this variety, and the price. *Germane Daisies* are the double variety grown in our gardens, but improved and in various colours by hybridising.

HAY.—W. B. H. wishes to know "how many cubic yards there are in a load of new hay, newly stacked?" Some of our agricultural friends will oblige us by sending an answer.

DYING (A poor Country Farmer's Thrifty Wife).—You will never succeed well with any colour but brown from gall nuts.

SPANISH AND GAME FOWLS.—H. H. wishes to know the price at which he can be supplied with first-rate specimens.

TOMATOES (Q. C.).—Sow at the end of March or early in April, in pots, in a hot-bed or stove. There are full particulars in *The Cottage Gardener's Dictionary*, under the head *Love Apple*. It is too long to extract. You are quite right as to the *Mignonette* culture.

PARROT (L. E.).—The case of a parrot tearing out its own feathers is very common, and we have never been able to obtain a remedy. We knew a cockatoo that for many years never had any feathers, except its wing quills, and on its head. It plucked out all the others. Such an unnatural proceeding seems to be induced by irritation of the skin.

COLOUR FOR HIVES (J. R. J.).—Wooden hives may be painted any light colour you please. There is no magic in any one. We prefer a stone colour. It is true light colours soonest become dirty, but they are easily washed or repainted, and light colours attract less heat than dark colours.

IRON TRAINING-RODS (G. J. W.).—If iron wire or rods are allowed to be rusty, they certainly injure the branches which chaff against them. We have seen a whole row of raspberry canes thus injured. The wounds strike a deep inky colour, the tannic and gallic acid in the bark combining with the rust or oxide of the iron. If the iron is galvanised, which does not rust, no such injury arises. The rods never become so hot in summer as to be injurious. Zinc wire is very brittle in winter, and expands so as to be too loose in summer. Galvanised iron is unobjectionable.

PIGS.—J. P. B. has a young litter of Chinese pigs which, though apparently fat and healthy, one by one lose the use of their forelegs, become unable to rise, and soon after die. Upon opening them, the liver is found to be enlarged, and a black spot on it. Can any of our readers suggest a prevention or a cure?

FRINCK ALBERT'S MODEL COTTAGES (An old Subscriber).—These are well suited for the country. If you write to — Woods, Esq., Secretary, Labourer's Friend Society, Exeter Hall, London, he will give you full particulars.

ORCHARD UNPRODUCTIVE (G. R.).—You cannot do wrong in clearing the trees from moss, and scrubbing the stems and branches with strong brine. Tell us what is your soil and subsoil, and whether turfed, and then we can tell you what to apply. We believe Dr. Newington's dibbles are useful; but we think a small cultivator may always make a drill out of a glass bottle, with pipes of different sizes to pass through the cork.

CURD FOR CHICKENS.—There is none so good as that made from rennet, in the usual way. Alum is sometimes employed for the purpose, but it is not every poultry-keeper who likes it. A calf's maw keeps so long, if properly prepared and taken care of, that it is quite worth while for any person who requires much curd for young fowls, to purchase one of some farmer's wife, and so always have it ready at hand. Perhaps some correspondent may be able to answer the question—In what manner graves are best used for feeding poultry, and whether there be any one living in the neighbourhood of St. Paul's Churchyard who sells them in cakes, giving directions how to use them to the best advantage for that purpose.

BEES (Kate F.).—Neither the *Kalmia latifolia* nor the *Asalea pontica* are grown in such abundance as to produce any bad effects in the honey of this country.

MELILOTUS LEUCANTHA (Ibid).—Send us a stamped envelope, with your address, and you shall not regret doing so. It will thrive in any soil. Cows will eat it, but they prefer either tares or lucerne.

BERRERY JAM.—We have this from a French gentleman:—Towards the 15th of October the berries are gathered, in dry weather. Shred them, and put them in a pan, with enough water, in which simmer them for a quarter-of-an-hour; then take them off the fire, and press them with a wooden spoon, to crush them; then pour them on a hair sieve, through which you must make the juice pass; then weigh the juice, and add to it a little more than its weight of fine sugar, broken in small pieces; put them again on the fire (the juice and sugar only). When the jelly rises in froth, by boiling, it is done. Take it away from the fire, skim it gently, and pour it into the pots.

EMIGRATING (W. W. W.).—We never recommend any place as desirable for emigration. It is too responsible an undertaking.

CHELESTIMA AGRATOIDES (Verax).—You can obtain it from any of the principal London florists. We have no Himalayah pumpkin seed left

STEAMING VINERY (*A Constant Reader*).—The best mode of keeping the air moist is by having three or four troughs, with concave bottoms, placed at intervals along the flow pipe, keeping them filled with water.

FUNGUS (*Boletus*).—They probably act the same part in the system of mutual dependencies which pervades all nature that is acted by all other vegetables—they consume decaying organic matters, and give out oxygen to the atmosphere.

CLEARING CIDER.—An *Enquirer* wishes to know how cider rather thick in the cask can be cleared? Will some Devon or Hereford reader oblige us with an answer?

TAYLOR'S HIVES (*Stupid*).—The difference in size will not interrupt the working of the bees. Your *Vine* will do on the arched border if the soil is from 18 to 24 inches deep, and of the proper quality.

GARDEN INSTRUCTION (*J. C. E.*).—Write to Mr. Appleby, at Messrs. Henderson's, Pine-Apple Place, Edgeware Road, London.

CHARRING (*F. W. S.*).—Cover the outside of the heap with earth about nine inches thick; the draught holes at the base must communicate

with the bottom of the chimney. Let the heap smoulder on until the fire goes out of its own accord.

NAMES OF PLANTS (*Sarah*).—We found your flower after our last number was printed. It is *Euphorbia splendens*. (*A Constant Reader and Young Gardener*).—Your *Cineraria*, we should say, is not a named variety; its form does not come up to the point of perfection, but its colour is beautiful, therefore is worth keeping as a window plant on that account. The other plant is the *Statice sinuata*, or the Purple-cupped Statice or Thrift; a half-hardy herbaceous plant; native of Sicily, Palestine, and Africa; generally dealt with as a greenhouse plant. (*J. V.*).—We take your heath to be *Erica vernalis*, which is readily increased by cuttings of the points of the shoots in sand and sandy peat, and the pots well drained. The cuttings should be covered with a bell-glass, and placed in heat.

LONDON: Printed by HARRY WOOLDRIDGE, Winchester High-street, in the Parish of Saint Mary Kalendar; and Published by WILLIAM SOMERVILLE OBE, at the Office, No. 3, Amen Corner, in the Parish of Christ Church, City of London.—March 18th, 1883.

Advertisements.

GIDNEY'S IMPROVED PRUSSIAN HOE.—This useful Garden Tool, so much in demand, and which has obtained Prizes at several Horticultural Meetings, as the best Weeding Implement extant, has received the highest testimonials from all the leading Horticultural Journals, also from most of the eminent practical Gardeners, as being so suitable for all gardening operations, and is adapted either for the workman, amateur, or lady gardener. See *THE COTTAGE GARDENER* of July 24, 1881. May now be obtained of all the principal Ironmongers and Seedsmen, or of the sole manufacturers, J. W. GIDNEY, Ironmonger, East Dereham, Norfolk, and of whom copies of the Testimonials may be had.—Price 1s 6d each, neatly handled.

One hundred per cent. cheaper than at any other Manufactory.

FRUIT TREES.—Worsted and New Twine Netting, for protecting Fruit Trees, Flower and Seed Beds, from frost, blight, and birds, or as a fence against fowls, cats, &c., can be had any width, length, or quantity. New Twine Netting, one yard wide, 1½d per yard; two yards wide, 3d per yard; ½-inch mesh ditto, two yards wide, 4½d per yard. Worsted Netting, two yards wide, 4d per yard. Sheep-folding Net, of superior quality, four feet high, 4d per yard; three Stranded Cord do., 6d per yard. The Repaired Tanned Fishing Netting, two or three yards wide, 1½d per yard; four or six yards wide, 3d per yard,—exactly the same as advertised by others at double the above prices.

Nets made to order, at W. CULLINGFORD'S, 1, Strathmore-terrace, Shadwell, London.

Rabbit Net, on Cord, 3d per yard.

THE TRADE SUPPLIED.

NETTING.—Superior Tanned Garden Netting, for protecting Fruit-trees from frost, blight, and birds, or as a fence for fowls, pigeons, tulip and seed-beds, can be had in any quantity from JOHN KING FARLOW'S Fishing-Rod and Net Manufactory, 8, Crooked Lane, London Bridge, at 1½d per yard one yard wide, 3d two yards, and 6d per yard four yards wide. Forwarded, carriage free on all orders over 20s, to any part of the kingdom on receipt of remittance, post-office order, or stamps.

THE LONDON MANURE COMPANY beg to offer as under:—

Corn Manure, most valuable for spring dressing, Concentrated Urate, Super-Phosphate of Lime, Nitrate of Soda, Sulphate of Ammonia, Fishery and Agricultural Salt, Gypsum, Fossil Bones, Sulphuric Acid, and every other artificial manure; also, a constant supply of English and Foreign Linseed Cake.

Esquian Guano, guaranteed the genuine importation of Messrs. A. Gibbs and Sons, £9 10s per ton, or £9 6s in quantities of five tons or upwards. EDWARD FUSSEN, Secretary, 40, Bridge Street, Blackfriars.

NEW AND CHOICE FLOWER SEEDS. FREE BY POST.

WE have selected out of our large collection of Flower Seeds the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in beds or groups in the flower-garden. We have marked each variety with its Botanical and English Name—Height—Time of Flowering—Colour of the Flower—Manner of Growing—Whether Erect or Trailing, &c.—the Time it should be Sown, and with other Valuable Hints as to its Cultivation.

In selecting these varieties we have been careful to exclude all shy-bloomers, or such which have an insignificant appearance, so that the collections will comprise only those which are really showy and handsome, and which we believe would prove to the entire satisfaction of any lady or gentleman who might be disposed to order them. The

GERMAN STOCKS, ASTERS, ZINNIAS, LARKSPURS, &c., are most superb. The collections will be sent free by post to any part of the Kingdom at the following prices:—

Twenty Extra Fine Varieties, all distinct	£0 5 0
Fifty ditto ditto ditto	0 10 6
One Hundred ditto ditto	1 0 0

J. C. WHEELER AND SON,
99, Northgate Street, Gloucester.

NURSEYMEN AND SEEDSMEN TO THE GLOUCESTERSHIRE AGRICULTURAL SOCIETY.

A NEW SEEDLING POTATO.

MESSRS. WHEELER AND SON have much pleasure in offering a New Seedling Potato, called

THE PRINCE OF WALES.

It is an excellent Early Potato, in fact one of the earliest in cultivation, so early that it escapes the disease more than any other variety. It is a great bearer, and excellent when cooked; indeed, it has every good quality that a potato can have, and as we have a good stock, we can offer it at a very low price. We have much pleasure in adding the following extract from *The Gardener's Chronicle and Agricultural Gazette* of the 12th of April last:—

"Prince of Wales Potato. MESSRS. WHEELER, of Gloucester. We can speak, from personal experience, to the excellent quality, productiveness, and earliness of this variety." We can offer it at 3s 6d per peck, or 9s per bushel, bag and package included. All quantities of a bushel and upwards would be delivered carriage free to London.

J. C. WHEELER AND SON,
99, Northgate Street, Gloucester.

NURSEYMEN AND SEEDSMEN TO THE GLOUCESTERSHIRE AGRICULTURAL SOCIETY.



BEE HIVES.—A NEW AND EXTENSIVE SELECTION OF THE MOST APPROVED KINDS.—A Priced Catalogue, with Drawings and Prices, sent on receipt of Two Stamps. GEORGE NEIGHBOUR & SON, 17, High Holborn, London.

"In noticing the hives exhibited in the Crystal Palace, first and foremost, in my opinion, stands Mr. Taylor's Eight-Bar Hive, and Messrs. Neighbour and Sons Improved Cottage Hive, both exhibited by Messrs. Neighbour."—J. H. Payne. See *THE COTTAGE GARDENER*, Nov. 16, 176.

AGENTS.—Liverpool: Wm. DEURY, Castle Street. Manchester: HALL and WILSON, 50, King Street. Glasgow: AUSTIN and MCASLAN, 108, Trongate. Dublin: J. EDMONDSON, 61, Dame Street.

WEEKLY CALENDAR.

M D	W D	MARCH 25—31, 1852.	WEATHER NEAR LONDON IN 1851.				Sun Rises.	Sun Sets.	Moon R. & S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermo.	Wind.	Rain in In.						
25	Tu	LADY DAY.	29.732—29.452	51—45	S.W.	14	53 a. 5	19 a. 6	11 19	5	6 0	85
26	F	Black-cap heard.	29.495—29.391	54—35	S.W.	17	50	21	morn.	6	5 42	86
27	S	Ducklings hatched.	29.540—29.516	56—44	S.W.	62	48	23	0 26	7	5 23	87
28	Su		29.792—29.697	56—40	W.	—	46	25	1 20	8	5 5	88
29	M	Double Hyacinth flowers.	29.562—29.440	56—35	W.	33	44	26	2 28	9	4 46	89
30	Tu	Wood Sorrel flowers.	29.750—29.558	54—36	N.W.	66	41	28	3 18	10	4 28	90
31	W		30.124—29.079	54—37	N.W.	—	39	29	4 1	11	4 9	91

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last twenty-five years, the average highest and lowest temperatures of these days are 53.2° and 34.1° respectively. The greatest heat, 78°, occurred on the 27th in 1830; and the lowest cold, 14° on the 25th in 1850. During the period 113 days were fine, and on 63 rain fell.

We cannot call to remembrance any notice of a nurseryman being mentioned before the seventeenth century was well advanced; and if this tradesman did not exist previously to that date, we have one very sufficient reason assigned for the slow progress of gardening before the arrival of that time. If the knowledge of improved varieties, or of new species of plants, was to be dependent upon private acquaintances and interchanges, the progress of that knowledge would be slow indeed; and the mind suggests more fluently than can the pen what must have been the inconvenience and consequences, by reflecting what they would be now, even in the present state of our improved gardening, if by the proclamation of some arbitrary President, the whole race of florists, seedsmen, and nurserymen was suppressed. It is not improbable that such men as Gerarde, Tradescant, and Parkinson, may have sold the spare produce of their gardens, but Ralph Austen, whom we mentioned a few weeks since, is about the earliest we have found named as a regular nurseryman, and that the trade was not long or widely established, seems intimated by the contemporary observation, that "his labours and experiments had done more good for Oxford, and thence for England, than was done by many gaudy gallants." At all events, the example had a most beneficial influence, and as the Universities were always rivals, foremost in the effort to establish a commercial nursery were the good lieges of Cambridge. Austen established his nursery about 1652, and in 1677 we find this work from the pen of Dr. JOHN BEALE:—*Nurseries, Orchards, Profitable Gardens, and Vineyards encouraged, more particularly for the benefit of Cambridge, and the champagne countries, and northern parts of England.* In this the doctor says:—"One objected, that if we had one skilful and diligent nurseryman, who had a complete nursery of all sorts of good trees, and of the best vines that agree best with this climate, and mulberry-trees, and wholesome trees for the avenues of cities, towns, and fair mansions, that one such nursery within ten or fifteen miles in all the vales of these three United Kingdoms, would make all these plantations spread apace, and amount to the value of millions yearly. I answered that it was now doing." That nurserymen were not generally established is evident from the context, for he then proceeds to recommend gentlemen to allow their gardeners to raise plants for sale, so that even cottagers might have the best vines, "who cannot send to Mr. Rose." It appears that the gardener at Wilton House was permitted to do so; and that there were also "goodly nurseries about Salisbury;" and that "his Majesty's gardener, Mr. Rose, was an obliging example, for his sale of the best vines, and the fittest for our climate." Yet there must have been many nursery gardens in the neighbourhood of London, for Parkinson, writing in 1629, says in his *Paradisus* (page 571)—"The Arch-Dukes Cherry is one of the fairest and best; scarce one of twenty of our nurserymen do sell the right;" and Meager, in 1670, speaks of "his very loving friend, Captain Gourle, dwelling at the great nursery between Spittle Fields and White-chappel, a very eminent and ingenious nurseryman." We may observe that this Captain Gourle was raiser of the *Elouge Nectarine*, of which the name is merely his own name reversed.

Next in chronological order, and pre-eminent in extent and excellence, was the *Brompton Park Nursery*; concerning which we are indebted for the following particulars to one of its former proprietors.

"In the year 1681, four enterprising men, gardeners of

the nobility, taking advantage of the new state of things, entered upon this undertaking as a great mercantile speculation. For this purpose they took upwards of one hundred acres of land situate between Old Brompton and the Kensington Road, and there they conducted the new establishment under the designation of '*Lukar, Field, Cooke, and London.*' Lukar was gardener to the Queen Dowager at Somerset House in the Strand; Field held a similar situation with the Earl of Bedford, at Bedford House, also in the Strand; Cooke* was gardener to the Earl of Essex, at Cashibury; and London, to Bishop Compton at Fulham. 'One of their first undertakings,' says Switzer, 'was at the Right Honorable Lord Viscount Weymouth's, at Longleat, in Wiltshire, where these four partners abode every one his month, and in the intervals attended their own business: of which the new nursery before named was not the least.'

"About the year 1680, the two senior partners died, and in 1689 Cooke disposed of his share to Henry Wise. In 1690 was formed that partnership under the name of '*London and Wise,*' which is so eminently associated with the gardening and garden architecture of that period. Both were men of high attainments in their profession; the practical experience which London obtained, both at home and during his residence on the continent, qualified him to accomplish whatever he undertook. He was originally a pupil of Rose, gardener to Charles the Second at St. James's, by whom he was sent to France for improvement: on his return he was appointed gardener to the Bishop of London, and subsequently, as above mentioned, 'he (with his associates) entered on that great undertaking of Brompton Park.' At the revolution in 1688, he was made superintendent of all the Royal Gardens, at a salary of £200 a-year, and a Page of the Back Stairs to Queen Mary, 'and it was particularly observed that he assisted at the revolution in carrying the then Princess Anne to Nottingham from the fury of the Papists.' Wise was also a man of considerable ability, and like London, was originally a pupil of Rose, the royal gardener. At the accession of Queen Anne, she committed the care of the Royal Gardens to Mr. Wise, and by him it was that Kensington Gardens were designed and planted, after the enclosure from Hyde Park. 'All the business of moment done for any of the nobility by Mr. Wise, was for his Grace the Duke of Marlborough, at Blenheim.—This stupendous work (begun and most part finished in three years' time,) may be reckoned among the greatest of all these two gentlemen's undertakings: Sir Richard Child's, at Wanstead, in Essex, is the next, and in some respects the best of the two. This was begun in 1706, a design worthy of an English Baronet, and equal to the greatest French peer.†

"During their occupation of the nursery, they were assiduous in promoting to the utmost the new direction which the science of gardening had assumed. Evelyn, whose authority upon the subjects of which he treated is perhaps more to be relied upon than that of any other man of his period, when speaking of the efforts of these gentlemen, says:—'Of all that I have hitherto seen, either at home

* This was Moses Cooke, the author of "The Manner of Raising, Ordering, and Improving Fruit Trees, &c., &c." London, 1679. o. He was the son of a farmer in Lincolnshire, and brought up to the profession of a gardener, in which capacity he served the Earl of Essex from 1660 to 1681. Evelyn in his "Diary" says, "he was skilful in the mechanical parts of gardening, not ignorant of mathematics, and somewhat of an adept in astrology."

† Switzer's *Iconographia*.

‡ Treatise on Fruit Trees.

or abroad; or found by reading many books publish'd on this subject, pretending to speak of nurseries and plantations for store and variety; directions for the designing, (or as they term it) the skilful making, plotting, laying out, and disposing of a ground to the best advantage; in a word, for whatsoever were desirable for the furniture of such a ground with the most excellent and warrantable fruit (I say warrantable, because it is peculiarly due to their honest industry, and so rarely to be met with elsewhere), and other accessories to gardens of all denominations, as in that vast ample collection which I have lately seen, and well consider'd at *Brompton Park*, near Kensington: the very sight of which alone, gives an idea of something that is greater than I can well express, without an enumeration of particulars; and of the exceeding industry, method, and address of those who have undertaken and cultivated it for public use; I mean *Mr. George London*, (chief gardener to their Majesties,) and his associate *Mr. Henry Wise*. They have made observations and given me a specimen of that long (but hitherto) wanting particular, of discriminating the several kinds of fruits by their characteristic notes, from a long and critical observation of the leaf, taste, colour, and other distinguishing qualities; so as one shall not be impos'd upon with fruits of several names when, as in truth, there is but one due to them. For instance, in Pears alone, a gentleman in the country sends to the nurseries for the *Liver Blanche*, *Pignigny de Chouille*, *Ratan Blanc*, &c., the English *St. Gilbert*, *Cranbourn Pears* (and several other names), when all the while they are no other than the well known *Cadillac*. The same also hap'n'g in Peaches, Apples, Plumbs, Cherries, and other fruit; for want of an accurate examination (by comparing of their taste, and those other indications I have mentioned,) for which gentlemen complain (and not without cause,) that the nurserymen abuse them, when 'tis their ignorance, or the exotic fame of which they are so fond. 'And as for the nursery part in voucher, and to make good what I have said on that particular, one needs no more than to take a walk to *Brompton Park* (upon a fair morning) to behold and admire

what a magazine these industrious men have provided, fit for age and choice in their several classes, and all within one enclosure: such an assemblage, I believe, as is nowhere else to be met with in this kingdom, nor in any other that I know of.

"In the year 1714 the nursery passed into the hands of 'Smith and Carpenter,' the latter of whom was author of 'The Retired Gardener,' in six parts. 1 vol. 8vo.: London, 1717. On these gentlemen retiring, Mr. Swinhoe became proprietor, and in 1750 he resigned in favour of his relative, Mr. Jeffreys, who, in 1788, was joined by Mr. James Gray, the business being then carried on under the firm of 'Jeffreys and Gray.' But Jeffreys dying only nine months afterwards, Mr. Gray conducted the business alone till 1790, when he received as a partner Mr. Wear, a nephew of Jeffreys, and also in a few years afterwards his brother, Mr. Robert Gray, the firm then being 'Gray, Wear, and Gray.' In 1800 Mr. Wear retired, and in 1818 Mr. Robert Gray also retired in favour of his nephew, Mr. William Gray; the establishment was then carried on till 1827, under the name of James Gray and Son, when they were joined by Mr. Robert Brown, a son of the Rev. Mr. Brown, minister of the parish of Eskdalemuir, Dumfries-shire, but who died at Florence while travelling on the continent for the benefit of his health. He was succeeded by Mr. Adams in 1837, the firm being 'Gray, Son, and Adams.' In 1842 Mr. William Gray died, and was succeeded by Mr. Hogg, on which occasion the firm became 'Gray, Adams, and Hogg.' Mr. Gray retired in 1847, at the advanced age of eighty-seven."

Brompton Nursery has now been sold, and will shortly be covered with houses, and its whereabouts rendered a matter of history. Among the houses about to be removed to make space for others, we believe is that now inhabited by Earl Talbot, in what is called *Brompton Park*, and it merits this special notice, because it was at one time tenanted by Mr. London, and subsequently by Mr. Wise, when the latter succeeded him as inspector of the Royal Gardens.

A CORRESPONDENT inquires—"Why the dungs of pigeons and other birds are not as powerful fertilizers as *guano*?" and the ready answer is, because other birds than sea-birds do not have food so abounding in ammonia. All flesh, whether of birds, quadrupeds, or fish, abounds in ammoniacal matters, or matters forming ammonia during their decomposition; and it is found, that just in proportion to the amount of flesh consumed as food by any living creature, is the fertilizing quality of the manure that creature produces. Thus sea-birds, living entirely on fish, produce guano; the human species, night-soil; and the dung of pigs comes next in power as a manure. The nearest approach to guano, that we know, is the dung of poultry, plentifully sprinkled and well-mixed with the ammoniacal liquor of the gas-works. If our correspondent will refer to our second volume, he will find at pages 2—3, a very copious statement of the mode of using guano, and a list of some of the garden crops to which it has been applied, and the results published. Since we wrote those particulars, we have met with Dr. Tschudi's *Travels in Peru*, published about four years since, and we think our readers will peruse with interest the following particulars he gives relative to this justly celebrated manure:—

"Opposite to Pisco and Chinca there is a group of small islands, of which the largest, *Sangallan*, is six English miles distant from Pisco. These islands have of late years become celebrated on account of the great quantity of guano that has been exported from them.

"Guano (or according to the more correct orthography,

Huanu),* is found on these islands in enormous layers of from thirty-five to forty feet thick. The upper strata are of a greyish-brown colour, which lower down becomes darker. In the lower strata the colour is a rusty-red, as if tinged by oxide of iron. The guano becomes progressively more and more solid from the surface downward, a circumstance naturally accounted for by the gradual deposit of the strata, and the evaporation of the fluid particles. Guano is found on all the islands, and on most of the uninhabited promontories of the west coast of South America, especially in those parts within the tropics. I have often been assured that beds of guano several feet high, covered with earth, are found inland at some distance from the sea; but I never met with any, and I have some doubt of the correctness of the statement. If, however, these inland strata really exist, I am inclined to believe that they can only be found on hilly ground; and in that case they afford strong evidence of a considerable elevation of the coast.

"Guano is formed of the excrements of different kinds of marine birds, as mews, divers, sheerbeaks, &c.; but chiefly the *Sula variegata*, Tsch.

"The immense flocks of these birds as they fly along the coast appear like clouds. When their vast numbers, their extraordinary voracity, and the facility with which they procure their food, are considered, one cannot be surprised at the magnitude of the beds of Guano, which have resulted from uninterrupted accumulations during many thousands of years. I kept for some days a living *Sula variegata*, which I fed abundantly with fish. The average weight of

* "The original word is *Huanu*, which is a term in the Quichua dialect meaning 'animal dung;' for example, *Huanacuhuanu* (excrement of the *Huanacu*). As the word is now generally used it is an abbreviation of *Pishu Huanu—Bird-dung*. The Spaniards have converted the final syllable *nu* into *no*, as they do in all the words adopted from the Quichua which have the like termination. The European orthography *Guano*, which is also followed in Spanish America, is quite erroneous, for the Quichua language is deficient in the letter *G*, as it is in several other consonants. The *H*, in the commencement of the word, is strongly aspirated, whence the error in the orthography of the Spaniards, who have sadly corrupted the language of the Autochthones of Peru."

the excrement daily was from three-and-a-half to five ounces. I have no doubt that when the bird is in a state of freedom the weight must be much greater, for these birds are constantly plunging into the sea, in order to devour the fishes which they find in extraordinary masses around all the islands. When an island is inhabited by millions of sea-birds, though two-thirds of the guano should be lost while flying, still a very considerable stratum would be accumulated in the course of a year.

"The marine birds nestle on the uninhabited islands, or on rocks near the shore; but they never settle on the flat beach, or any place distant from it inland. On this fact, I ground my conjecture that those beds of guano in the interior, which may have been removed from the shore by important elevations of the coast, are to be found only on hills.

"During the first year of the deposit the strata are white, and the guano is then called *Guano Blanco*. In the opinion of the Peruvian cultivators, this is the most efficacious kind. It is found in the Punta de Hormillos, on the islands of Islay, Jesus, Margarita, &c.

"As soon as the dealers in guano begin to work one of the beds, the island on which it is formed is abandoned by the birds. It has also been remarked, that since the increase of trade and navigation, they have withdrawn from the islands in the neighbourhood of the ports.

"Much has recently been written on the employment and utility of guano; but the manner in which it is applied as manure in Peru seems to be but little known. The Peruvians use it chiefly in the cultivation of maize and potatoes. A few weeks after the seeds begin to shoot, a little hollow is dug round each root, and is filled up with guano, which is afterwards covered with a layer of earth. After the lapse of twelve or fifteen hours, the whole field is laid under water, and is left in that state for some hours. Of the *Guano Blanco* a less quantity suffices, and the field must be more speedily and abundantly watered, otherwise the roots would be destroyed. The effect of this manure is incredibly rapid. In a few days the growth of a plant is doubled. If the manure be repeated a second time, but in smaller quantity, a rich harvest is certain; at least, the produce will be three-fold that which would have been obtained from the unmanured soil.

"The haciendas of the valley of Chancay have, during the last fifty years, consumed annually from 33,000 to 36,000 bushels of guano, brought from the islands of Chancha and Pisco. The price of the bushel of coloured guano is one dollar-and-a-quarter, and the price of the white from two to three dollars. The price has recently undergone many fluctuations, in consequence of the great exports to Europe.

"The employment of this kind of manure is very ancient in Peru; and there is authentic evidence of its having been used in the time of the Incas. The white guano was then chiefly found on the islands opposite to Chincha; so that for upwards of 600 years the deposit has been progressively removed from those islands without any apparent decrease of the accumulation. The uniformity of climate on a coast where there is not much rain, must contribute to render the Peruvian guano a more rich manure than the African, as fewer of the saline particles of the former being in solution, they are consequently less subject to evaporation."

CONTINUING the publication of such information relative to garden implements and structures as we receive in answer to our request, we come next to the following.

The first is from a gentleman, near Northampton, who writes thus:—

"The following is a sketch of a gardening implement which I recollect to have seen some years ago in constant use, for transplanting, taking up plants for potting, &c., in the garden of a relative, resident at Warwick. As it has never come under my notice elsewhere, perhaps a description of it may be serviceable to some of your readers who have many small things to transplant in the course of the season. It consisted of a hollow cylinder (A), open at both ends, of thin

iron, affixed to a common spade handle by an iron shank, which was divided into two parts below, and riveted to the



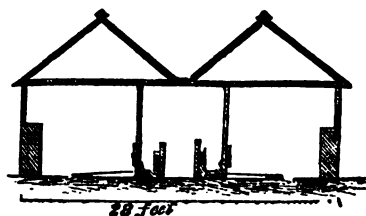
opposite sides of the cylinder. Within the cylinder, and fitting it closely, a narrow iron rim (B), worked up and down by means of a slender rod (D), carried up the spade handle, and kept straight with it by a couple of small staples. This implement was made of various sizes suitable to those of the flower-pots in common use. When placed round a plant it was pressed into the ground, by applying the foot at E, and a slight twist having been given to the instrument, the plant could be lifted and carried to any part of the garden, to be placed, by pressing down the moveable rim (B), in a hole of exactly the same size prepared for it by a like process. Thus the roots of the plant were not disturbed in the least degree, while all derangement of the neatness of a flower-bed was avoided, and a considerable amount of trouble and time saved—no unimportant consideration in the busy time of spring and summer."

The next implement we commend heartily, and the more so because it is within the means of many, for it will be seen by an advertisement in our last number, that the inventor (Mr. G. Gotch, 15, King-street-terrace, New North-road, Islington) sells them for 3s. 6d. each.



"The useful invention accompanying this note is one of *Gotch's Patent Flower-pot Protectors for Windows*. It is well adapted to suit the middle classes, and one which I think the great mass of the people will avail themselves of. I so think from my knowledge of the many thousands who are pent up in cities and large manufacturing towns, that cannot get the sight of a flower, or even a green blade of grass, from one week's end to another, and who would gladly avail themselves of the opportunity of having a few flower-pots at their windows. Now, as in the case of London, such town-prisoners are prevented having such pets by a 40s. penalty, and by the fear of having the flower-pots blown into the street, to the imminent danger of passers-by. It will readily be seen that this danger and difficulty are at once overcome by Mr. Gotch's invention, for while the pots are held secure in the window-sill, the heads of passengers in the street are protected from danger. Thus aided, the hard-working mechanic can, in his leisure half-hour, relieve his mind from the dull monotony of his labour, by attending to the flowers growing in his window, without the fear of offending the law; and at such a price as will come within the means of the humblest artisan."

The last structure we shall mention to-day is the *Cow Vinery* of Mr. Lawson. He found his first house, built on this principle of taking advantage of animal heat, answer so satisfactorily, that he is now erecting a double one, as represented in this sketch.



We will only add the following extract from a note from Mr. Lawson, and refer those who wish for further

information, to Tirydail, near Llandillo, where he resides.

"You will observe that I have flued the walls, for using fire-heat, if necessary, in very severe frost, for the comfort of the cattle; or, in damp weather, for drying the house, to prevent late hanging fruit from becoming mouldy or mildewed. The air for the fires is taken from the inside of the house, to assist in promoting circulation of air."

GOSSIP.

A CORRESPONDENT (C.), whose handwriting we would gladly see often, writes as follows, relative to a passage in our present volume at page 368:—

"Will you permit me, in the most courteous manner, to inform Mr. Beaton that William Wells, Esq., of Redleaf, was the other gentleman to whom Lord Hardinge offered one of the plants of the *Amberstia nobilis*. Respect for the memory of a gentleman so esteemed as a liberal patron of horticulture as Mr. Wells was well known to be, induces me to think that when such minutiae are detailed, it is only just that the fact should be as deserving of mention as that Her Majesty, and other exalted personages, were so honoured by Lord Hardinge."

Nearly two years since we drew attention to the two *Tradescants* by the following short memoir:—

Even as late as the end of Henry the Eighth's reign (1540) it was the custom of his queen to send for a salad to Holland; and his daughter, Queen Elizabeth, when endeavouring to improve our horticulture, and to rescue it from that shameful dependence, thought it wise to seek for instructors in the same country; she obtained from thence one *TREDESKIN*, or *TRADESCAN*, to be the Royal Gardener, who, with his equally celebrated son, are especially entitled to our notice. *JOHN TREDESKIN*, or, as it is now usual to call him, *TRADESCANT*, was not gardener to Queen Elizabeth only, but probably held the same appointment in the royal households of her successors, James and Charles I.; for when he died, about this time in 1637, he was succeeded, as gardener to the king last named, by his son, usually known as *John Tradescant the younger*. There is no record of his burial, but in the churchwardens accounts for 1637-8 of the parish where he resided, St. Mary's Lambeth, there is this funeral entry:—"Item. *John Tradescant; ye gret bell and black cloth, 1s. 4d.*" His wife had died three years previously, for in the same parish-officer's accounts for 1634 is this acknowledgment—"June 1. Received for burial of Jane, wife of *John Tradescant*, 12s." The emoluments arising from the office of royal gardener were considerable; money was then five times more valuable than now, yet even then the gardener at Hampton Court (who was also a foreigner, *John Dinye*), another of the royal establishments, received about two shillings per day; and *Tradescant* probably, as the head cultivator of the London establishments, would receive more. It is, moreover, certain that he had profited both in acquiring knowledge and wealth, by being gardener to the Lord Treasurer Salisbury, Lord Wotton, and the Duke of Buckingham, previously to succeeding to the royal gardenership. He was devoted to his profession, and travelled far more assiduously and fearlessly in pursuit of plants than did his contemporary Gerard; the emblematic figures still traceable upon his tomb in Lambeth Churchyard seem to have reference to his visits to Greece, Egypt, and Barbary; and he even accompanied the fleet sent against the Algerines in 1620, for no other purpose than to obtain a supply of Algier apricot-trees: he was successful in his enterprise, and our gardens were also indebted to him for a new strawberry from Russia, and a superior variety of plum from Turkey. Our pleasure grounds, also, were enriched by him with the deciduous cypress, and many flowers. He lived and died, at the date we have stated, at his house in South Lambeth, and surrounded by the plants and curiosities he had collected in such abundance, that the garden and establishment were known popularly as "*Tradescant's Ark*." His son, *JOHN TRADESCANT, JUNIOR*, succeeded him in his appointment, and was in every way his equal as a gardener, naturalist, and antiquary. He also was a traveller in search of plants, visiting Virginia in 1620, and bringing thence many

new plants; among these was the Spiderwort, and if this was named after him *Tradescantia*, in allusion to his fondness for antiquities, it is a satire not severe enough to be offensive, nor within the just reproof—"if you crown a botanist, let it not be with thorns." We have before us that rarity—a perfect copy of his catalogue, with portraits of his father and himself, entitled *Museum Tradescantianum; or, a collection of rarities preserved at South Lambeth, near London, by John Tradescant*. This was published in 1636; and that it did contain rarities our readers may judge when we state that one item is "Two feathers of the Phoenix tail!" The list of plants in this catalogue is far more rich and authentic, for he was here a teacher and not a novice; and it is gratifying that the very spot is known where they were cultivated by him: it is close to the vinegar manufactory of Messrs. Beaufoy; and when visited by Dr. Watson in 1749, a few plants were detected among the weeds—"manifest footsteps of the founder." That spot is yet worthy of a pilgrimage, and we wish the garden could be found there entire, to reward the research of each palmer of science, instead of being almost traceless, and associated with many details of sorrow and shame. *Tradescant* found himself in old age childless; and he tells us of the departure of the last of his descendants, when, in all the simplicity of true grief, he states that his catalogue had been long before written, when "presently thereupon my only son died," and for four years it was passed aside. Mr. Ashmole, a man of congenial pursuits, lodged in *Tradescant's* house, and the childless couple, for *Tradescant's* wife was a party, by a deed of gift (we use *Ashmole's* own words) "bestowed upon me their closet of curiosities when they died." *Tradescant* died on the 22nd, and was buried on the 26th of April, 1632, and *Ashmole* has the boldness to record his own baseness when he enters in his Diary, under the date of May 30th—"May of the same year!"—"This Easter Term I preferred a bill in Chancery against Mrs. *Tradescant* for the rarities her husband had settled on me." In two years he records that his suit came to a hearing, and he evidently was foiled, for he does not state the result, and the widow remained in possession. But the antiquarian vulture was not to be baffled; he hung upon the aged widow, and, we may be sure, importuned and dogged her, and was impatient that death did not sooner render the gift-deed operative. At length he prevailed, and tells us in his Diary—"Nov. 26, 1674. Mrs. *Tradescant* being willing to deliver up the rarities to me, I carried several of them to my house." This taking from the old widow these relics and remembrances of happier times seems to have continued at intervals, and then came the fearful ending, which the spoiler shall tell himself. "1678, April 4. My wife told me Mrs. *Tradescant* was found drowned in her pond!" We have erred—this was not the end; for next year *Ashmole* obtained a lease of the poor old widow's house and garden, and the name of *Tradescant* is not associated with that of *Ashmole*, though his "closet of curiosities" formed a part of what is now the *Ashmolean Museum*. We are aware that there is a document in the Bodleian Library purporting to be signed by Mrs. *Tradescant*, acknowledging she had vilified Mr. *Ashmole*; but who shall convince us that that signature is genuine?

We republish this memoir because we would shew that the *Tradescants* are worthy of the gratitude of every gardener and botanist, and that every one of them who can spare a shilling would do well to send it to any one of the following gentlemen, who have consented to receive contributions for the repair of the *Tradescants' Tomb*, in Lambeth Churchyard:—*Sir W. J. Hooker*, Royal Gardens, Kew; *J. F. Young, Esq., M.D.*, Lambeth; *P. B. Duncan, Esq.*, Keeper of the *Ashmolean Museum*, Oxford; *Rev. O. B. Dalton*, Rectory, Lambeth; *Messrs. Reeve*, Henrietta Street, Covent Garden; *Messrs. van Voorst*, Paternoster Row; and *Mr. Pamplin*, Frith Street, Soho.

The *Whitehaven and West Cumberland Horticultural Society* have fixed their show days to be on the 9th of July and 17th of September. This Society was established in 1830. Its secretary is Mr. Dixon, 3, Market Place, Whitehaven.

PINE-APPLE CULTURE.

Those who have not gone over their stock should lose no time in doing so. It is customary, and, indeed, in the majority of cases, absolutely necessary, to renew all bottom-heats in the end of February, or beginning of March at latest. Indeed, with those for early fruit, this process becomes necessary much earlier. Even where there are those safer modes of bottom-heat,—tank-heated chambers,—some spring re-arrangement becomes necessary. It is almost impossible, and, indeed, unnecessary, to suggest what precise course to pursue, as everything depends on the structures and means within reach of the cultivator. If fermenting materials are used, it too often becomes necessary to disturb the whole pit, which can never be accomplished without much injury to the pines, especially if they are in an advanced state. Hence the anxiety manifested by some first-rate cultivators to obtain tank-heated chambers to plant them out permanently, as Hamilton and others have urged.

In thus disturbing pits which have been some time filled, a selection of materials must be carefully made. Where good leaves have been used, a portion will be found, where most excluded from the air, in a tolerable sound state, and well-adapted for the purpose of mixing with the new material. It is almost needless here to urge the very great superiority of oak leaves; those who have them will be sure to use them.

In some cases, where pits were what is termed "bottomed" in the autumn, they will only require surface renewal now, especially if fruiting pines are contained therein. In this position of affairs it is not unlikely that portions of the tan may be husky, and require water. Such should be carefully applied, and some new tan being added, and the whole dug or worked over deeply with a sharp stake, a speedy renewal of heat will take place; after this pointing-in, a coating of new tan may be applied over the surface, ready for the next "pointing-in." However, all these applications, both in kind and degree, depend on the character of the bed, and the position and age of the plants. If it is suspected that the plants are rooted through the pots, some care must be exercised not to injure their roots.

A rather *general shift* will be necessary, if not already accomplished. Thorough drainage, a good turfy loam, and roomy pots, are the main essentials. As to drainage, this we consider the most important of the whole. The pine may be considered a ground orchid in this respect, and receive as particular a character of drainage. Whatever is used, it should be so placed as that at least three large apertures for the escape of moisture, and the ascent of gaseous matters, are secured. This done, some pounded materials, clean sifted, should be strewn over the whole, and then a thin coating of dried turf, chopped; from which nearly all the soil has been ejected by tossing it about. Such altogether will form an excellent and enduring pasturage for the roots, which will nestle and ramify through all portions of it. As to soil, although turfy loam of a sound or slightly adhesive character is doubtless the best adapted to British skies, yet some manurial matters may, with advantage, be mixed with the soil. Almost any ordinary manure, not too much decayed, will answer if of good quality, and may constitute nearly one-third of the mass. To this may be added some sand and a little charcoal grit, which will have the effect of securing openness in the soil for a long period. If any of the young stock are in a bad state at root, it will at once argue mis-management in drainage or watering; such must be liberated from the old soil and repotted in fresh, using the same, or even smaller pots. But with regard to those in a perfectly healthy state there is nothing like a roomy shift; indeed, if all other appliances were certain, and no farther disturbance

necessary, there appears no reason why a young plant may not go to its fruiting pot at once.

It must be remembered by the young pine grower, that he may count on the fruit rising, under good culture, at from nine to twelve months from the period at which a strong succession is put into its fruiting pot; this, therefore, is a guide in most cases.

And now, the spring arrangement being carried out, the next consideration is to be very jealous of raising *bottom heats*. The power of the sun is considerable already, and daily increasing, and in conjunction with the rising powers of the fermenting materials, and perhaps fire-heat, the misfortune termed burning may speedily take place; after which it is vain to look for fine or high-flavoured fruit.

Perhaps about 84° is a more congenial heat than any other from the end of March to the end of September. If, however, the heat should fluctuate a little from 76° minimum to 90° maximum, no great harm may be apprehended. We would on no account exceed 90°; a slight amount of temporary starvation, to use a harsh term, may partially suspend the energies of the plants for a while, but "burning" will paralyse them, and is in a degree irremediable. The application of water at root, whenever the plants need it, will, of course, be attended to, and let the water-pot man remember that whenever he has any doubts, it is better to lean to dryness than to overwatering, especially the kind termed black Jamaica, which will not only bear, but enjoy, a considerable amount of drought. The application of abundance of atmospheric moisture is, of all other matters, the great essential; this can hardly be too abundant, and the syringe should be liberally used morning and evening; ventilating freely for a few hours. Shading may be had recourse to, where stock has received a check, for a few hours only in the middle of the day.

ROBERT ERRINGTON.

FUCHSIAS, CLIMBERS, &c.

In about six weeks or two months I shall be able to give an article or two on cottage architecture, from actual experience, both of head and purse—a subject which, from the said experience, I know full well will be as useful to thousands as any thing I can say about planting flower beds; besides, now that I have slipped the collar, and sat down under my own vine, they will find it a hard matter to keep me to *Be-at-one* thing, as Mr. Fish will have it. But still I must own, that if this old constitution of ours is worth fighting for at all, it must be more on account of our flower gardens and blooming ladies than anything else I can think of, and so the flower gardens are not to be let down for fancy architecture, or any other fancy, let it ever be so useful to the world at large.

When I came here, after leaving Suffolk, I found my vine in good order, pruned and dressed for the winter, sufficiently to satisfy Mr. Errington himself. I found, also, after the 2nd of December, that there were two nice pieces of ground, one on the right and the other on the left of me, which, if the French President was obliged to come over here a second time, or even came without compulsion or compunction, he might settle here, on either side of me; and not liking the smell of gunpowder, or ugly customers, I rented the two pieces for ninety-nine years, and set-to in the old line of bricks and mortar again; and by the time specified I shall have three of the best-built cottages in England quite finished; and being my own architect, clerk of the works, some days a master, at other times a labourer, and having drained the gardens, and trenched them too, deeper than Mr. Mechi ever dreamed of; and having, also, made up my mind and my pocket, if I am

spared, to plant them at the proper time in the first style of fashion, if I cannot write an article or two about them all that will be useful to this and the next generation, I deserve to have the French President at supper with me on May-day, if not sooner.

There is a great temptation at this moment for young ardent spirits to commit a great fault in the flower-garden; the winter has been so mild and short, one-half of the *fuchsias* are not cut down by frost, and now you can see the buds in purple specks all up the branches, and you have come to the conclusion that you will surprise your neighbours this next season with your *fuchsias*, which you expect will come to double the size of such as are regularly cut down every season; pray be not so fast; however, I once thought as you do now, and tried the practice in various ways, but all would not do. Yet there is still one chance for you, which none of us have tried yet, and it *may* answer, and I should much like to hear of many trials of it being made, now that I have no opportunity of trying it myself, my new ground being so full of botanical curiosities, that I dare not trust it this season to experiments of any kind. The whole has been planted with potatoes and broad beans long since, and in return for your experiment with the *fuchsia*, you shall have my balance-sheet without reserve next autumn. No doubt you have read with some interest the new way of making old *fuchsias* flower, so as to carry off the prizes in a tract of the country where, I can assure you, competition runs very high. I forgot to say, that under the system of flowering the *fuchsia* so well from the old stems, not a particle of the roots is ever touched. The more roots there are, and the thicker they grow, the surer a prize is won with them; there is no reason, therefore, why you should not succeed on the same principle out-of-doors. Go over your *fuchsias* now, one by one; select so many of the strongest canes of last year's growth, or, if your plants have withstood more than one winter, select from the oldest of the shoots just as you would proceed with so many raspberry canes; cut away the weak canes close to the ground, and reserve from five to ten of the strongest ones on a stool or old plant; then prune all the side-shoots from these canes quite close to the main shoot, and also a foot or so off their tops. If it is possible ever to cause an old hedge or bush of *fuchsia* to flower with that vigour and constancy for which young plants are so much admired, this must be the way to do it properly; and if the same system were rigidly carried out for a few years, I see no reason why we could not have immense specimens of *Gracilis* and *Riccartonii* in as full bloom, and the blossoms and leaves be as large and look as healthy as those on the young wood, in the usual way of cutting down annually. At any rate, it is well worth while to put the experiment to the test of actual practice. We all know that both hedges and huge specimens of these two *fuchsias* do exist at the present moment in different parts of the kingdom; but those gardeners who have seen them, declare that they lack that vigour and healthy appearance peculiar to younger plants, and that must be, in a great measure, owing to the system of allowing them to carry every sprig that escapes the frost, to grow and flower indiscriminately; at least, it appears so on the face of it.

Here I must acknowledge the kindness of all those useful correspondents who report to us the issue of such experiments as we severally propose from time to time in these pages; and, also, our desire to see their numbers increased every season. It is all very well and flattering to hear in private conversation, that "I have done so and so from hints derived from THE COTTAGE GARDENER;" but why not tell the world at large, through the same channel, whether the thing answered or failed? The report of a failure is just as useful as

that on the other side of the question, provided all the circumstances of the case are fully detailed.

At the end of my last letter but one, I advised seeds of all our *half-hardy summer climbers* to be sown forthwith; and as it is of the greatest consequence that none of these should receive the slightest check from the sprouting of the seeds to the time the plants are in full bloom, many good gardeners adopt a system with them, and other plants of the same nature, that ensures the least possible delay in their flowering. I shall explain it here, and advise all those who have not yet tried it to do so this season, if only for a change from the more usual mode; and, for example, let us take the *Canary plant*. Instead of sowing a score of the seeds in a six-inch pot, to be transplanted singly into the smallest-sized pot as soon as the seedlings are fit for parting, let the smallest pots be taken in the first instance, and sow three seeds in each, at equal distances from each other, then we have three chances for one plant, and if the three seeds come to make three plants let us keep them; but by no means attempt to divide them when the pot is full of roots, but rather shift them in their entire ball into the next largest-sized pot, this change can hardly be called a check at all, but the contrary. Ten more days will put them a week in advance of transplanted seedlings from the same sowing, if these seedlings were divided in the usual way; and almost all gardeners know that one week gained in the spring, is fully as much as three in the summer-time for flowering or fruiting plants from the same sowing. It is upon this principle that the forcing gardener plants his winter kidney beans in small pots at first, with the intention of not disturbing them afterwards. Now, there are a hundred kinds of flower garden seeds, and more besides, which can be got ready to flower two or three weeks sooner than the usual time, by some contrivance or another founded on this plan of not checking; but for all such as require frames and artificial heat in their first stages, there is no method so handy as the small pot system of sowing the seeds.

The now common system of sowing peas and other vegetable seeds on the under side of thin narrow strips of turf, and then laying the pieces side by side on a shelf or in a frame, to be removed out by-and-by, and planted in continuous rows, without any more disturbance, is well adapted for many kinds of flower-seeds; if, indeed, it is not the best plan of all for the whole of them. I recollect the day when this system was given to the world in the Memoirs of the Caledonian Horticultural Society, who awarded a prize to the author of it, the late Mr. Smith, of Methven Castle, in Perthshire. The parings from the sides of the walks in the spring make the best foundation possible for beginning this system for the first time; therefore, instead of letting the handy-man carry them off in his barrow to the compost yard, just tell him, from me, to wheel them to the open shed, or to the potting shed if the wind is easterly, and then take an old rusty knife—the point end of an old scythe will do—and trim off the grassy side, and also part of the bottom soil, so that you might almost twist the grassy ribbon round your wrist; then place the grass side on the bench, and sow your seeds on the other side, as you would in a pot, or in the open border; sprinkle a little soil over this, and pat it down, then stick a tally or mark stick at one end, and the thing is done in less time than it takes to write about it. The lid of an old hamper, or a piece of board, will do for a tray to carry so many of the pieces to the frame, or to a south border, or to anywhere else; there place them as close as three in a bed, and scatter a little soil over them to fill up the seams between the pieces, and last of all water them; and what can be nicer, and give less trouble? Then, when the young brood are ready for the flower-beds, or training-posts, or walls, or what-not, to re-

move them one by one, put them on the old bed or tray, carry them to their destination, and then and there divide them, according as you see fit. The roots of the grasses, and those of your seedlings, have so interlaced by this time that you might almost divide the pieces to shreds, without doing much violence to the seedlings themselves. The grass will soon rot, and then is the best feeding thing that one can think of—the very thing which the best potters advise us to use over the drainage. For getting up a large quantity of mignonette and ten-week stocks in a hurry, two bad things to transplant at any time, this is just the very process that the best of us could hit upon at a push. Then, if you want a row of *Sweet Peas*, where so-and-so are soon to be in flower, and you cannot think of destroying them just yet, or the weather is cold or wet, and you are afraid of trusting the peas out, see how ready the grass strips come in to nurse your young plants for a time, and all that you will have to do at the time of setting is to open a drill, and lay the strips down at full length, and cover an inch of soil over them, and, next moment, who can tell but the whole were sown in the usual way; besides, you have the nourishment from the rotting turf to the bargain

D. BEATON.

MOSS.

THERE are few subjects that have not two sides—the dark and foreboding on the one hand, the bright and the cheering on the other. It matters not what may be the subject; whether the highest that can engage the human intellect, or the merest trifles of every day life—express but the pleasure you feel, and you will soon be cooled down by the depreciating innuendos, the awful, lowering, ever-ready “*buts*” of some who are the wet-blanketers of society. That such unfortunates should really enjoy the delights of gardening, we do not expect; though we hope that if they have a spark of benevolence left, they will keep the gloomy to themselves, and not throw its blighting spell over others more joyously disposed. I have often been struck with the vivid contrast in this respect between adjoining neighbours. Enter the garden of the one, and your old favourites are rendered *greater* favourites still, as you witness the delight and enthusiasm of their proprietor. Blemishes here and there *might* be found, but with so much to admire, who could think of looking narrowly for defects? You have little to do but to sympathize with your entertainer's delight. You pass one or several assistants; every countenance is lightened up by an employer's smile of approbation, if not a kindly greeting. Ask whether that smile, or the haughty fault-finding, will be the most promotive of continued and exercised effort? But you pass on. The next garden is quite as beautiful, if not more so; but, somehow, the sunlight has gone from your spirit. You feel as if a mesmerist, or rather a biologist, had got you entrapped. Anything like admiration must come from yourself, followed by directions to look at this and that defect, with continued grumblings of disappointments. “Even John Trueman, there, that after much trouble I managed to obtain from neighbour Goodheart, don't seem to be the same as he was; he just looks as if he did not care whether I was satisfied or not.” Ah! the fault did not all lie at Trueman's door. We pass a beautiful basket filled with plants still more beautiful, growing in moss, and the moss looking so enticingly green. We cannot get away from it; we cannot help stating our imagination; we even think that honest Trueman may be none the worse for our deserved commendation; we even get somewhat poetical, and, thinking aloud, say something of the beautiful structure of the lovely moss; the delight which must swell the bosom of the traveller as he lights on an oasis of green in the wide wilderness of sands;

the—“Humph,” breaks in our proprietor, as we were going to descant on some of the many uses to which the common moss might be applied—“Humph, I wish you, basket, and plants, and altogether, carried off to your *oasis*, if, by so doing, you could convey all the moss from my premises. I am not fanciful, you see. I pride myself in not being *poetical*! I am a matter-of-fact man, as you know! and the fact too truly is, that that moss in its various shapes is the worry and torment of my life. Look at these meadows; I cannot go in some parts of them without getting up to my ankles in moss. Even that lawn you keep talking about, though it is not so much seen now, will present you nothing but *moss* towards autumn. Neighbour Goodheart, it is true, talks just as you do; of its being soft and elastic as a superline Brussels carpet; but then I wish for grass, and not for moss; and there now, it is regularly seizing the top and the joints in the bricks of my wall, not so very old, and is getting over the stems of my fruit-trees; and—but I need not say more, I am always sure to be disappointed, &c.” And until he can look at the bright side of things, it is very likely he will ever be.

Now it is not my purpose to say how much in grass lands the moss may be prevented smothering the grass, by drainage, that removes the humidity on which it feeds; how by harrowing and raking, and pulling up that moss, and good surface-dressings of ashes and other matters, rich in alkaline properties, the grass will be made to smother the moss; there are readers who have had more experience in this respect than I can boast of; neither would I say much about its removal from lawns, for, unless the moisture would be excessive, we would prefer a mossy lawn for its softness, and the ease and the economy with which it can be kept, owing to the minimum of mowings and sweepings it would require, and also because those who are anxious to banish it altogether will find the best instructions from our friend Mr. Beaton. Neither do I find it my duty to say much as to the removal of moss from trees and walls, wherever desirable, because the remedy propounded by, and, for ought I know, originating with, Mr. Errington, namely, a dashing or scrubbing of salt-water, is one of the many plans of that gentleman, not more striking from their effectiveness than their extreme simplicity. I find I must now allot the space remaining to me to mention a few of the uses to which moss may be successfully applied by all gardeners, and especially by amateurs of moderate means. Let us glance, then

First, at moss as a *packing medium*. So far as my limited experience goes, I imagine that Mr. Beaton has hit the mark in so strongly recommending damp moss for the roots of plants destined to a long journey. Both in a wet and a dry state, however, it is equally useful for packing plants that are merely to travel from one part of our *home* empire to another. We have already seen that for general purposes, utility and economy are combined by obtaining plants in a young state. These latter conditions are also secured by their occupying the least possible space, and being of the least possible weight. Tying moss over the mouths of pots, and then placing these pots upright in round shallow baskets, unless in the case of large, costly plants, is a mode that must soon be reckoned amongst the antiquities. Laying down on their broadsides, is the mode that, for moderate distances, combines safety and economy, as some scores of plants may thus be safely sent in a small basket. There are several modes of doing this:—First, packing the pots in moss, slightly moist, and the plant above the pot in moss too, but thoroughly dry; secondly, growing the plants in small pots, removing the pots, and thus getting rid of the chief weight and incumbrance, and wrapping each ball in moss or stout paper; and, thirdly, by a mode which we shall mention, using the moss itself chiefly as a growing medium, and thus

dispensing with potting altogether. Whichever of these modes be adopted, *firmness* in packing is the most essential. For want of it, a heave from the top of a coach, or a thrust from a luggage van, will have a tendency to produce something of the smashing, far from agreeable to contemplate when the basket is opened. For a substance combining firmness and of a yielding character, we have found nothing equal to moss. For baskets not more than from twelve to eighteen inches in width, not anything else than the moss will be required. When more than that width, and you contemplate the basket will not be opened for eight days at least, it would be advisable to place a layer of straw, shavings, or anything of that open kind, merely as breathing places for the centre of the basket. So packed, after being thumped by land and water several weeks, we have seen and heard of the plants being taken out quite fresh, and not a leaf broken. For sending by post, nothing is better than a light tin or wooden box. The young plants should have the earth removed from their roots in a pail of water, be allowed to drain, the roots then laid in moss, which will become wet enough by the remaining moisture obtained from the pail, though allowed to drain, and the tops packed in the driest moss or cotton wadding. The use of the box is chiefly as a safeguard from the crush of the stamp of the postmaster.

Secondly, we may glance at moss as an equalizer of moisture. Mr. Appleby, who has been happily instrumental in diffusing a taste for these splendid plants, can well tell us how useful, even on this account, it is for the cultivation of many orchids. I have frequently adverted to its beneficial operation as a draining medium, in all pot cultivation, parting with the moisture that is redundant, and hoarding it up like miser's gold when the plant is threatened with drought. When other means are wanting, we have found it, in a half-decayed state, a valuable ingredient in composts, tearing it in pieces for large shifts, and chopping and cutting it small for little pots. Heavy clay soils were thus rendered lighter and less retentive of moisture, while the very opposite effect was produced on soils of a loose, sandy, porous character.

Lastly, let us glance at the cases in which moss may be so used, as to dispense with the expense of the pots, and the bother and vexations connected with their breakage, and continuous washings. It has already been seen that bulbs may be so grown, either for the ornamenting of the greenhouse or sitting-room. Many of our friends, with small gardens, go through the great proportion of their labours in potting, to bring forward plants that are to be turned out of their pots into baskets, vases, and small beds in summer. Economy of time and labour, and *saving* in the cost of pots, which, somehow, come to be needed every year, are with them questions of great moment. Aye, and these are matters which must now be thought about in our very largest establishments. Hence I have mentioned from my own practice, that a great proportion of such plants may never see a pot at all, merely by pricking the plants out in any roughish material in which the roots would hang rather firmly. I have not used moss long, to any extent, for this purpose, nor am I the originator, by any means, of so using it; that honour, I presume, belongs to Mr. Ferguson of Stow, who made such a stir with his penny plants. There is much more trouble in doing them in moss, as I did, than in pricking them out; but for all plants that do not make masses of fibrous roots, it will be found the most economical in the end. I must only give an instance or two. Look back to the mode described for propagating shrubby calceolarias in autumn. In a similar place, and the convenience of the same old lights, only facing the south, a great number of these little calceolarias were planted, after being wrapped in moss in

the following manner:—A good handful of moss is taken, laid rather flattish in the palm of the left hand, on that the young plant is placed, and then about it and around it, a small handful of rich light charcoal soil; the moss surrounds all, and is tied with a piece of matting. It is then dipped into a pail of warmed water, and plunged up to the axils of the leaves in the rude prepared bed. This was done sometime in November, as far as I recollect. They have not been watered since. They are such a thicket of healthy plants as are not to be seen every day, and have merely had plenty of air, and litter thrown on the glass to keep out frost. A number were potted at the same time, but for all the trouble they have occasioned in examining, watering, &c., they are neither so strong nor so healthy. The moss is now a firm mass of fibres. Young scarlet geraniums, done at the same time, are also well rooted in the moss; you may catch them by the head, pull them up, and take them, or pack them for any where. I propose serving a lot of old scarlet geraniums, kept perfectly dry, and just alive all the winter, in a similar manner, directly. When planting time comes, they will never feel the moving. I will dip each plant in a tub of warmed water, and the moss will so hold the moisture that they will want little more for the summer; and then, in addition to all this, I think, though as yet I cannot be certain, that those who wish to take from basket or bed their old plants to keep them over, will be able to do so more easily and effectually than ever, as there will be the roots clustered in the moss always to fall back upon; the best roots, in fact, will be preserved, instead of being left behind in the bed or box.

R. FISH.

PROPAGATION OF EXOTIC ORCHIDS.

(Continued from page 370.)

ERIA.—A large genus from the East Indies, very few of which are worth growing. Such as are worthy, may be readily increased by dividing two or three of the back pseudo-bulbs from the plants at the time of potting; put those divisions in pots and give no water till the young shoots and fresh roots appear.

EULOPHIA.—A genus of orchids, with bulbs like the same *Bletias*. They may be increased in a similar way.

FERNANDESIA.—Plants with curious pretty stems and leaves. Increased by division.

GALEANDRA.—In this genus there are some splendid plants which are difficult to grow and increase. *G. Baueri* should be propagated in a similar way as that described for *Catacactus*, but it is safer to place the part intended to form a new plant upon a block without moss till it forms a new shoot and fresh roots, and perfects the first new pseudo-bulb. Then, after the season of rest is over, pot it, block and all, and treat it like the established plants. *G. Devonianum* should be increased by passing a sharp knife through the rhizoma or root-stock, and allowing the parts to remain in the pot till the divided parts have each grown one year; then, at the potting time separate, pot, and treat them like the old plants, but be particularly careful of water lodging in the young shoots.

GONGORA.—The whole of this genus are worth growing, and they are easily increased by cutting off two or three pseudo-bulbs, potting them, and treating them exactly like the large plants from which they are divided. The best season for this operation is when they are beginning to grow, and require potting.

GOODYERA.—Increased in the same way as *Anectochilus*.

GOVENIA.—A genus of some beauty worth increasing, which may be done easily in the same way as *Bletia*.

GRAMMATOPHYLLUM.—This genus produces large pseudo-bulbs, especially *G. speciosum*. Increase in the same way as *Cyrtopodium*.

HOULETTIA.—All the species of the genus are beautiful, and worth increasing. The way to accomplish this well, is to break up large plants into three or four, allowing the same number of pseudo-bulbs to each plant or division. Single pseudo-bulbs will grow, but they require three or four years to make flowering plants.

HUNTLEYA.—This is a genus of orchids almost approaching to evergreen herbaceous plants, and to increase them, the same means must be used as for such plants, namely, by division. The time for this operation is in spring, when the plants are beginning to grow. A little extra care in watering is necessary with the small divisions or young plants, as they are apt to damp off if kept very moist.

LACINA.—Increased in the same way as *Cattleya*.

LAELIA.—This well-known beautiful genus of plants is easily increased by dividing one or two, or more, of the back pseudo-bulbs from the leading ones, placing the pieces so divided upon naked blocks, and treating them in the same way as the established plant, which we always cultivate upon blocks, excepting *L. Perianthii*, which should be increased in the same way as if it were a *Cattleya*.

LEPTOTES.—The plants of this genus are small, neat, and pretty, and are worth propagating. As they naturally send forth several leading rhizomes, it is easy to take one off, pot it, and treat it like the large plants.

LIASOCHILUS.—Propagated the same way as *Blotia*.

LYCASTE.—In this genus there are some really splendid species, especially *L. Skinnerii*. The safest way to propagate them is to pass a knife through the rhizoma, dividing one or more back pseudo-bulbs from the leading ones, and allowing the division to remain in the same pot till they have formed new bulbs. Then, at the potting time, gently separate them, pot, and treat them like the old plants.

MAXILLARIA.—This was formerly a very large genus, but has been split into several genera by Dr. Lindley, yet there are some left under that name worth propagating. *M. tenuifolia* is, perhaps, the best. They are propagated in the usual way, by cutting off two or three back pseudo-bulbs from an established plant, fixing them to a block with a small quantity of moss, and allowing them to form their first new bulbs; then pot them, and treat them like their parents.

MILTONIA.—An important family of orchids, richly deserving every care. They are easily increased by cutting off one or two of the oldest bulbs. They may be potted at once, for, if not very old, every one is sure to grow, especially if not too much watered at first, nor kept too warm. Proportion the size of the pots to the size of the divisions.

MARMODES.—A curious lot of plants, that change wonderfully into each other. They are all worth increasing—that is, it is desirable to have more than one plant, or, as is the case with most orchids, by dividing the plants a number of leading shoots will be obtained, and a fine specimen formed, which never could be done if the plants were allowed to grow unassisted.

T. APPLEBY.

(To be continued.)

CULTURE OF THE ROSE FOR EXHIBITION.

(Continued from page 384.)

BUDDING AND PRUNING.—The grand season for budding is from about the middle of June to the end of July; this, however, depends much upon the weather and the state of the stocks and buds. If the stocks are growing and the sap flowing freely, the bark will separate easily from the wood, and then they are in the best possible state for the operation. The sap should also be flowing freely in the shoots from which the buds are to be taken. The materials wanted for budding are a

sharp good budding-knife, of which there are several varieties; the one commonly used has a blade of the scimitar form, with the handle made of ivory, rather flat, and brought to a thin edge at the end, and neatly rounded off. This kind may be procured at any respectable seed shop or nursery for 2s. 6d. A Mr. Earnshaw, of Sheffield, has invented one that has a kind of hollowed end made of steel to raise the wood out of the bud, but, though it appears to be a likely instrument, the budding men are afraid it will not answer so well as the ivory for the work; however, it is worth a trial, and when practised with awhile may be found useful. Besides these knives, Mr. Turner, our old friend, also of Sheffield, has invented a budding-knife, which is highly spoken of, but unfortunately I have not seen it, and therefore cannot say in what respects it is an improvement upon the ordinary one.

Another article is some kind of string to tie the bud in and keep it firm in its place. The most common is the old-fashioned bass mat; this, if used, should be thin, soft, and pliable, and should be used in a moist state; thick cotton, or worsted thread is now generally used by the large growers, and is very excellent for that purpose. The stocks generally adopted are clean straight stems with roots of the common hedge rose. These may be procured out of the hedges, or out of copse where they grow wild. They may be had of various heights from six feet to one foot, all of which will be found useful. Plant them in nursery rows in rich soil, early in November. Cut off the tops to the desired height previously to planting. At the place where they are cut the stock should be not less than as thick as a man's little finger. By being of this strength, and pretty well rooted, they will be able to send forth one, two, or three shoots, strong enough to receive buds the succeeding season.

Previously to putting in the buds, take a common pruning-knife and go over the whole of the stocks, dressing off the side-branches of the young shoots (if any are produced) close to the stems, especially near to the place where the bud is to be inserted. This should be done a week or two before the budding season. The reason for doing this is to throw a greater quantity of sap into the fresh bud, as well as, by cutting off these superfluous shoots, to enable the operator to perform his work more easily.

All these preparations being made, and the stocks and buds in good working order, choose a rather dull cloudy morning, and commence the budding by first taking off a shoot or two, or more, as may be required, of any kind that may be desirable to increase. Put the ends of these shoots into a vessel containing water, to keep them plump and fresh till they are used.

In the first volume of *THE COTTAGE GARDENER* there are some wood-cuts of the different and various modes of budding, and to such of our readers as are fortunate enough to possess that volume, we would say turn to that place and con over the pictorial lesson. For the benefit of such of our readers as may not have the volume containing the wood-cuts, we will endeavour to describe the operation. Take a shoot of the kind wished to be increased, trim off the leaves, leaving on a short piece of the leaf-stalk; then cut off a portion of the shoot about half-way through, carrying the knife slanting upwards about as much above the bud as the beginning of the cut is below it. When this is cut off, it will be about one-and-a-half-inch long, with a bud in the centre, then put the shoot into the water again, turn the bud over, and with the point of the knife raise up the wood from the bark at the lower end, give it a smart twitch, and the wood will all come away from the bark excepting the small portion in the eye of the bud. Should this come out also, the bud will be hollow, and of no use; throw it away, and try the next till you succeed in leaving it in; then place the bud between your

lips, holding it gently, take the knife in the right hand, and take hold of the shoot to be budded with the left, make an incision or cut, no deeper than the back, across the shoot, then form another incision lengthwise down the centre of the shoot, bringing it up just to the cross-cut, turn the knife, and with the ivory end raise up the bark on each side of the longitudinal cut without tearing it, take the bud in one hand, and dexterously thrust it downwards, leaving a small bit of the bark of the bud above the cross-cut. The short leaf-stalk will now be found useful to push the bud into its place, then turn the knife in your hand again, and gently, but cleanly, cut off the portion of the bark of the bud that was left above the cross-cut. Fit it in so that it may touch closely the bark on the upper side of the cross-cut. If this is well done, the two barks will quickly unite, and thus cause the bud to swell and grow. Tie the bark of the stock closely down upon the bark of the bud, leaving the bud uncovered. The situation of the new bud we had nearly forgot; it should be on the upper side of the young branch of the stock, and not more than two inches from the main stem. If the stock has more shoots than one, put a bud into each, and proceed till one variety is finished; then place a number or name to it, and go on with the next kind, numbering it also, and so proceed till all the stocks are budded.

T. APPLEBY.

(To be continued.)

SOME OF THE BEST KITCHEN-GARDEN VEGETABLES.

As a sort of wind-up to the last number of the present volume, we believe we cannot do the amateur better service than by recommending to him such a selection of vegetable seeds as we have found best adapted to the wants of small or medium-sized gardens; annexing such remarks as our limited space will allow, and confining our list solely to such as possess the merits required.

BROCOLI.—*Purple* and *White Cape* for autumn use, followed by *Walcheren*, that succeeded by *Grainge's* or *Snow's*, winter, and finally *Chappell's*, the *Wilcoxe*, or *Boule's*, will carry the season through; a little of the *Sprouting* ought also to be sown, in case a severe winter occurs. The usual time of sowing is the end of April, but the late kinds sooner; while *Walcheren* may be sown in succession as late as June.

BRUSSELS SPROUTS.—The best is imported; sow in March.

BORECOLE.—*Curled* or *Scotch Kale*, and *Buda Kale*, are both inferior in point of delicacy to *Chou de Milan*, which is, however, less hardy; sow all three as early as you can.

BEANS.—*Early Hangdown* may be sown in November, after which the *Green Windsor* is in more repute. *Johnson's Wonderful* is very long in the pod, but less prolific than the two kinds mentioned above (?).

BEANS (DWARF KIDNEY, OR FRENCH).—*Fulmer's Early Forcing*, followed by *Canterbury* and *Liver-coloured*; the second week in April is soon enough for trusting the first sowing out-doors.

BEANS (RUNNER KIDNEY).—The old *Scarlet* is better than the *White*, *Painted Lady*, or *Cane-knife*; the end of April they may be sown.

BEET.—The best *Crimson*; but we cannot recommend any particular named variety; the *White* is used as a salad. The beginning of May both may be sown.

CABBAGE.—The *Fulham* and *East Ham* to stand the winter, and the *London Market* for summer crop. The former may be sown from the first to middle of August, the latter early in spring; they all deserve good ground.

CARROT.—*Early Horn* the best flavoured, next to

that the *Green-topped*; the *Altringham* and *Surrey* are said to keep better. Sow early in April.

CAULIFLOWER.—Although we have grown what was called the *Asiatic*, the *late* and the *early*, we never could distinguish any difference. Sow a good early kind, in some favoured situation, at the end of August or beginning of September; the other kinds in succession, in spring, up to the middle of June.

CELERY.—*Seymour's White* and *Lion's Paw*, both good whites; *Manchester*, or *Cole's Dwarf*, for red. Sow on some well-prepared bed first week in March, prick out in May or June, and finally plant in trenches in July and August.

CRESS.—The *Plain* is best for small salading; but the leaves of *American* and *Golden Cress* are useful in winter, for which sow the end of August. *Common Cress* sow weekly, in the open ground in summer, and in pans, placed in heat, in winter.

CUCUMBER.—*Sion House* and *Roman Emperor* are prolific bearers, but are not prize sorts; the improved *Stockwood* is the best for out-doors.

ENDIVE.—*Batavian* is the hardiest, but is not so crisp as the *White Curled*; both may be sown in succession, from the middle of June to August.

LETTUCE.—*Brown*, *Brighton*, and *Paris Coss*, and *Drumhead Cabbage*, are best for summer, and *Hardy Hammersmith* and *Brown Dutch* for winter. Sow in succession from February to September, and plant on good ground.

MELON.—*Beechwood* and *Bromham Hall* are good, as is also *Hampton Court*. The best scarlet-fleshed are some of the *Rock* or *Canteleupe* varieties.

ONION.—*Globe*, *White*, and *Brown Spanish*, or *Portugal*, and *Reading*, for general crop, and the *James' Keeping* and *Strasburgh* for keeping; sow the first week in March. The *Silver-skinned*, for pickling, need not be sown before May, and then very thick on poor ground.

PARSLEY.—The best *curled* that can be had. Sow from February to July.

PARSNIP.—The *Jersey Marrow* is said to be finer than the *Hollow-crowned*.

RADISH.—*Wood's Early Frame*, *Salmon*, and *Short-top*, all good, as is also the *White* and *Red Turnip*. They all require fine, mellow ground.

SAVOY.—*Drumhead* is best, but the *Green Curled* is hardier.

SPINACH.—*Round-leaved* for summer, and *Long-leaved* for winter; the latter sow the 1st of September, the former in succession in spring and summer.

TURNIP.—*Snowball* and *Early Stone*, both good; the latter best for winter.

VEGETABLE MARROW.—*Common* is better than the *Custard*. Sow in heat in the middle of March, and plant out in May.

POT AND SWEET HERBS.—These must be regulated by the wants of the family, but usually *Sweet Marjoram*, *Chervil*, *Basil*, *Sage*, *Thyme*, and *Fennel*, are used, as well as *Mint*, *Tarragon*, *Sorrel*, *Angelica*, &c., which are generally propagated from slips, rather than seeds.

LEeks.—The *London Flag* or *Scotch* is best.

PEAS.—*Warner's Emperor* for first crop, *Champion of England* and *British Queen* for main crop; the first sow in November, the others in succession from February to July. Where sticks cannot be had, sow *Woodford's Marrow*, *Bedman's Imperial*, and *Bishop's Longpod*.

SUNDRIES.—Besides the above, a little *Asparagus* ought to be sown every year; as also *Seakale*, *Cardoons* if wanted, *Capsicum* or *Chilies*, *Tomatoes*, *Salsify*, *Scorzonera*, *Rampion*, *Chicory*, and some more things, which the taste or wishes of the family may dictate; and *Shalots* and *Garlic* ought to be planted very early in spring, as well as plantations of *Globe Artichokes* and *Rhubarb* made, and *Jerusalem Arti-*

chokes and *Potatoes* planted; but these crops, though of the utmost importance, do not come within the limits of the "seed list," only, for literal accuracy, I have here mentioned them.

J. ROBSON.

A WAY TO BE MISERABLE.—No. 2.

By the Authoress of "My Flowers," &c.

It may, I hope, benefit my younger readers, to consider the consequences of another early and thoughtless marriage, about which I am going to tell them. One or two *real* examples are better and more convincing than a hundred fancied ones, which are often passed by as amusing tales, without doing any further good; and I feel sure if any thing can persuade the young to be in no hurry to settle in life, a very great deal of good will be done.

Ann Jones married William Bird in the thoughtless way that most young people enter upon this solemn contract. She was very young, very giddy, and very self-willed. Her mother was a woman of great piety, and did all she could to teach Mary the right way, but she made no impression upon her, and it ended in her marrying William Bird, a reckless, worthless fellow, fond of poaching and rat-catching, but nothing else. Mary soon repented of what she had done, but it was too late to mend the matter. She was very unhappy, half-starved, and unkindly treated. She used to go to her mother's house whenever she could, and always found a welcome, and as much food as poor people have to spare, which is but little; but at her own home she had no comfort, and she bitterly repented the foolish step she had taken, and the misery she had brought upon her own head.

If Mary had been a few years older, she might perhaps have known better what to do, and how to do it, than she did now. She was but a girl, and could only cry, and go to her mother when William was cross or tipsy. Things might have been better had she been older; but certain it is, that where God is not loved and feared, no blessing can be expected upon any thing we do; and however we may strive to do right and wisely, we shall *never* find one.

Mary Bird was not a strong young woman, and sorrow, want, and fatigue, began to pull her down. She had a cough, too, which increased upon her, and the labour of carrying her baby about began to be very great. She used to stay for days at a time with her mother. Bird cared not where she was, as long as he had not to feed her; he went ferreting and poaching, and left her to do as she pleased.

Poor Mary! consumption had attacked her, and her days were numbered. She was obliged at last to give up all her work, and be waited upon by her poor old mother, who was not strong herself, and great were the privations this poor young creature suffered as she lingered on the bed of sickness. She knew and felt that she had brought misery upon herself, and distress and difficulty upon her parents, and she began, too, to feel the truth of all her mother had told her of the world beyond the grave, to which she was rapidly hastening. All these things came before her as she lay helpless and exhausted. Oh! what terrible companions are self-reproach and terror when they sit beside our death-bed! It pleased the God of Mercy to give her an assurance of peace *at last*; but long and bitter was the repentance she felt before the comfort came; and her worldly sorrows lasted to the end. Her husband cared nothing about her; he came to the house, and went in and out as he pleased, but he took little notice of his poor dying wife, and never did any thing for her. When she felt her end approaching, she sent for him to take a long farewell, but he stood by her bedside as if he was made of wood, dropping her hand, and leaving the room as soon as he possibly could. Dying as she was, the countenance of poor Mary expressed the pain this unfeeling conduct gave her. Her eyes followed him till he disappeared, but he never looked back at her.

Something like this will ever be the case when people marry in this way. Death may not so soon part them—they may live together for many years, but with no better foundation than youthful fancy, and no other reason than their perverse will, they cannot hope to be much happier than poor Mary and her wild husband were. The blessing of God must be sought, and striven for, or else there is no

hope, whether young or old—*this* is the one thing needful; but there are very few young people who think about this one thing, or any thing else, except the fancy of the moment, and, therefore, if a few years can be gained, more serious feelings may awaken, by God's grace; and at any rate, sense and understanding will improve, and give a woman a better knowledge of her duty as a wife.

Harriet L.—was six or seven-and-twenty when she married George Collins. She was a very well-conducted, clean, active young woman, but she hit upon an indifferent helpmate, who would have made a sad husband to a young, giddy girl. As it was, Harriet acted dutifully and prudently when she found out the truth. She was always at home, always clean and cheerful, and rather playful in her manner; above all, she was a woman of a soft voice and few words, and never tried to have the *last word*. This is an excellent thing in woman—we do not always attain it—but it goes very far towards making our homes happy. George Collins is a quiet, peaceable man to look at, and says very little, but he is very determined, and there is no way of dealing with him when he takes a thing into his head. A young woman without discretion, or a talking one, would have been beaten, or deserted, but Harriet sat very quietly mending his clothes, and gave him his tea with a quiet face, and a kind manner. He is very fond of her in his way, and is a very kind and strict father; and her patient forbearance and good sense have influenced him so much, that she can go to him in the beer-house and bring him quietly home. A step scarcely any other wife dares to take, or gets any thing by if she does.

Now, we cannot say that every woman of Harriet's age will have her gentleness and prudence; but there is more likelihood of it than if she is under twenty. Harriet is a woman of a religious mind, which is the only *real* security for right action, prudence, and forbearance; but still much may be hoped in a worldly way, from a few added years and experience.

Parents are doing immense mischief to their children by letting them be their own masters at so early an age as they do now. All very old people shake their heads, and say—"It was not so in my day;" and they are grieved at the evil that arises from the change. Vice and crime spring from it, as well as want and social discomfort. Many village sins and sorrows arise from it; many miserable children and sorrowing parents. "Children, obey your parents in the Lord, for this is right. Honour thy father and mother, which is the first commandment, with promise: that it may be well with thee, and thou mayest live long in the land. And ye, fathers, provoke not your children to wrath: but bring them up in the nurture and admonition of the Lord." This is the precept of God, and not of man. Let us all hold it fast, and obey it.

ALLOTMENT FARMING.—APRIL.

THE busiest month in the whole year, and the man who will not put forth all his energies at this period is unworthy of the soil he occupies. It is of little use to ask him to carry out improvements in his plot of ground during the dull days of autumn and winter, if he stand with folded arms in April. But to the really industrious and steady labourer, who possesses that valuable addition to a comfortable cottage—a bit of land, April is a month of unusual animation, and the labours and plottings of the truly diligent are accompanied by a degree of hilarity, arising from a secret consciousness of the fact that well-directed labour applied to the soil is sure to bring a corresponding reward.

Last month we drew attention to mixed cropping, and we hope that some of our readers have benefited by the hints there afforded; if they do not take them as they stand, they may at least receive assistance in chalking out schemes of cropping.

POTATOES.—Surely most of these are planted by this time, if not, the public is a hard learner. To those who have not, we say, lose not an hour; every week after the middle of March increases the chances of potato disease. This valuable root is now rapidly recovering its lost tone, in these parts at least, and this in consequence of the avoidance of fermentation, coupled with early planting. Our seed has all

lain on boarded floors since the digging-up time, and finer stock was never seen. Having occasion to weigh a bushel the other day, the man who did so had provided a basket, such as is usually employed to hold a bushel as they are taken from the pits or hogs. Tom was, however, prodigiously surprised to find that the 90 lbs. allowed as a bushel in these parts would not by any means fill the basket. Now Tom is a deep fife, of some fifty to sixty summers, and is considered marvellously 'cute among his compeers; but Tom could not unravel the mystery, so he appealed to a higher authority, for he thought there might be some Greek or Latin in the affair. In order to illustrate the thing familiarly, Thomas was asked whether a labourer who should mow an acre of grass on a hot day in June without eating or drinking, would weigh heavier when he entered the field or when he came out? These seed potatoes, then, are firm, unsprouted, and unfermented, and the middle-sized ones, termed "sets," are alone planted. This practice has been gaining ground in these parts ever since the commencement of the disease.

And now for the routine of April business, which we will place in the order in which it may be executed, not according to the importance or value of the various items. If any crop is named for which March was the proper time, we do so for those who have been guilty of neglect.

ONIONS.—Deep digging on plots well-manured for a previous crop. Cover thinly, and tread or roll the surface hard when dry. We prefer beds, in drills, at seven inches distance.

JERUSALEM ARTICHOKEs.—Best on boundary or coarse pieces; need no manure. Plant in rows with twenty-six inches between, the roots fifteen inches apart.

PARSNIPS.—A deep loamy soil best; if chalky, so much the better. Whatever manure is used, dig it down at least a foot deep. In rows of eighteen inches; plants thinned out at three operations. The first merely singled, coupled with clean weeding; the second, plants reduced to three-inch distance; and the last, in July, to six-inch distance. At this time, the thinnings will be valuable food for man or beast.

COMMON TURNIPS.—A few for accommodation; for these ephemerals may not usurp the room required for winter stores. Some of the Dutch kind sow immediately; they will do as an edging to a plot, using no manure, for it spoils their flavour, makes them run to leaf, and keeps them too late on the ground for a succeeding and profitable crop. We sow such without even digging, if the ground is pretty good. As soon as full-sized, they must be pulled, the tops immediately cut off, and the roots soiled over a foot thick; they will keep a month or more, and throw their ground at liberty in the early part of July.

BROAD BEANS.—The last planting in the beginning; they will not pay afterwards.

PEAS.—If ground can be spared, let a good row or two of the Green Imperial be sown in the early part of April; few allottees or cottagers ought to spare either ground or manure for them afterwards. At the sowing, some rotten and very moist manure should be dug in, to prevent mildew.

CARROTS.—Here we have an important affair; one of the most valuable roots in cultivation. We would, nevertheless, rather lean to the swede and mangold on limited plots, as being more certain; the mangold especially, as producing bulk with quality. By all means, trench two spades deep for carrots of the larger breed, introducing rotten manure in the bottom spit. If some of the subsoil comes up in the operation, so much the better, unless some ungovernable clay. They may be sown in alternate rows with parsnips, the drills fifteen inches apart. These crops combined, being progressively thinned up to the beginning of August, a selection must be made. If the grub has taken the carrots, there will be a crop of the parsnip to fall back on; if not, the carrots may be retained, or, by heavy thinning, a portion of each may be reserved. In sowing carrots, our practice is to fill half the drills with a stimulus thus prepared:—The bulk of the mixture is very old manure or leaf-soil, in a fine, powdery state, to this we add one-eighth of guano, and one-sixth of soot, and then add the seed. The whole is most completely mixed, and, as before observed, the drill half-filled, simply raking the ordinary soil over the whole. Of

course, the amount of material and quantity of seed is closely calculated previous.

SWEDES.—What more important? From the cottier to the prince they creep into our economies. Those who sow in drills to remain, may do so from the middle of April to the second week in May; we thus allow much latitude, in order to facilitate schemes of mixed cropping. Sowing to transplant is another thing; this must, in part, be ruled by the condition of the crops forming part of the combination. Allowance must be made in this case for the richness of the soil, both in earliness of sowing and distance. Rich soil, later and thinner; poor soil, earlier and thicker. Sow, to remain in drills, at about twenty-seven inches; in seed-beds to transplant, make drills across four-foot beds, at five inches apart. It ought to be more generally known, that strong Swedes from the seed-bed may be transplanted with a bulb as thick as a little stone turnip, with success. Indeed, this is the only plan with mixed crops, when the ground comes to hand late. We have proved this conclusively. Let us advise a similar drill mixture to that suggested for carrots.

MANGOLD.—This loves saline applications, a good depth, good tilth, and no lack of manure. If the soil be shallow, sow the Orange Globe kind; if very deep and loose, the Long Red. In drills twenty-six to thirty inches apart; plants finally thinned to eight to ten inches. Sow from the middle to the end of the month. We have had a very good crop sown near the middle of May.

CABBAGES.—Sow once a month until the middle of August. Of course the extent of each sowing must be ruled by the prospective need of plants; the latter determined by the cropper's scheme. A liberal sowing should be made in the middle of the month, to provide plants for blanks in the root crops, &c., and a similar quantity in the middle of June for Coleworts. The hoe should be now freely worked between those planted in the autumn, or in February.

BROCCOLI.—A luxury; a pinch of the Walcheren, Snow's Winter White, and the Wilcove in the middle of the month, and the Cape and Walcheren in the last week.

THE VARIOUS GREENS.—Curled Kale, Brussels Sprouts, Savoy, &c., in the beginning, if wanted. The Thousand-headed Cabbage, too, if room to spare.

MISCELLANEOUS.—Nasturtiums, Scarlet Runners, and Kidney Beans, towards the end. Lettuces, a pinch once a month—the Ady's Cos. Cucumbers, Gherkins, and the Vegetable Marrow, at the end.

And now a little parting advice to the cottager. Be sure to care for your *manure-heap*; do not have it scattered about with its surface dried up. Spread a little soil over it monthly, at least. Do not suffer the rains to carry its strength down the next ditch; it will suit your neighbour, but not yourself. Make up your mind that not one weed shall seed in your plot, if possible. Dig deep, and stir deep, at all times, unless roots may be injured. Perform no cultural operations when the ground is wet, unless it be hand weeding. In transplanting operations, do not suffer the roots to become in the least dry whilst out of the soil. Puddling is a good practice before planting. Dig a hole where the plants are pulled—say cabbage plants; pour some water, dung-hill drainings if at hand, into the hole, and stir the water about until thick mud; in this dip each bunch before placing it in the basket. In order to be sure in your plans, and that the sowings of temporary or supplementary crops may be conducted with economy and certainty, look once more over your allotment schemes, and proceed with decision. In the next we shall have to deal principally with cultural affairs.

R. ERRINGTON.

APIARIAN'S CALENDAR.—APRIL.

By J. H. Payne, Esq., Author of "The Bee-keeper's Guide."

APRIL may be considered the first month of the Apiarian's year; a month of busy preparation for the coming honey season, and its many pleasing occupations. A good supply of new straw hives (where they are used) are supposed to be already in hand, with glasses and covers, depriving hives, adapting boards, bee dresses for the operator and an assistant, and, indeed, of everything that will be required during the season.

FEEDING.—This very important matter must now be care-

fully attended to, for, from the mildness of the winter, breeding has been going on for some time, and, consequently, an unusually heavy demand is being made upon the stores of the hives, which if not timely supplied by feeding, famine will be the consequence; and of all other kinds of food (except honey in the combs) barley-sugar will be found to be the easiest to supply, as well as the best food.

FLOOR-BOARDS.—It will be well to give the floor-boards a final cleaning for the season, and the middle of a bright day will be the best time for doing it; and, at the same time, any pieces of comb that during the winter may have fallen from the top of the hives, and are fastened by the bees to the bottom of the combs that are in their proper places, should be removed.

CUTTING OUT OLD COMBS.—This is also the best time to remove a leaf or two of comb from old hives, perhaps the two outermost ones, but not any more; the box-hives are admirably adapted for this operation; still, with a proper knife (the one figured in my *Bee-Keeper's Guide*), it may easily be effected in the straw hive.

DRONE BEES.—Drones will probably make their appearance in some of the strongest hives about the end of the month; a sure proof this that the stocks from which they issue are in a thriving and prosperous state.

PUTTING ON GLASSES, &c.—It is very probable that at the end of the month some of the most populous hives may require supering, as it is termed, but I would advise its not being done too soon, indeed, not till the bees have shown evident signs of want of room, for it is exceedingly desirable that the stock should be in such a state as to ascend into the super immediately upon its being placed upon the stock hive.

GUIDE-COMB.—It will be found that by placing a piece or two of white comb at the top of the glasses, the bees will be induced to commence their operations more readily.

ROBBERS.—Care must now be taken to guard against robbers, by narrowing the entrance of every hive that is attacked by them, and that upon its being first discovered, for in a few hours they will do considerable mischief. I have found wedges of cork to answer admirably well for this purpose.

YOUNG BEES.—I have, for the last few days, seen young bees in my strongest hives (now the 10th of March), which shows that breeding began earlier than usual this season, therefore, in such hives, and, indeed, in all, feeding must be carefully attended to.

BEES FORSAKING THEIR HIVES.—There has been more of this lately than usual. I have seen several instances of it; indeed two in my own apiary, one leaving in the hive twenty pounds of honey, and the other a larger quantity, the combs in both hives being perfectly dry and clean.

DR. BEVAN.—I am happy to learn that the appeal made to the apirians in the neighbourhood of Hereford has so far been effectual, that our venerable friend Dr. Bevan's apiary, which was washed away by the recent flood, has been replenished by the contribution of several stocks of bees, greatly to his gratification. It will further give pleasure to many of our readers to find that a number of sympathising apirians have taken copies of the Doctor's excellent publication, "The Honey-Bee," a work in itself of the greatest value, which, at the author's advanced age, it is highly desirable to turn to the pecuniary account it so well merits, and which recent events have served to render more than ever an object of interest. In saying thus much, I have no fear of being misunderstood in any quarter.*

* We hope it is no breach of confidence to add the following extract from Dr. Bevan's letter:—"I told you that I had constructed an edifice for the accommodation of my bees, which I denominated my Virgilian Temple. This was upraised by the impetuosity of the roaring torrent, and carried down the river, bees and all. The compassionate interest which they called forth, greater perhaps than that of their owners, induced several of my kind neighbours to tender me four well-stocked hives; and a party of apirian friends at Birkenhead, who, fancying themselves under some obligation to me, and feeling that, as they are with others benignantly pleased to say, the loss of my apiary was a calamity afflicting to all apirian cultivators, have most generously clubbed together to 'rebuild the temple,' which is now actually rising in our garden, and nearly completed. These evidences of benevolence have been almost overwhelming, and have tended greatly to reconcile me to the calamity which has befallen us, at the same time that it raises our opinion of human nature, enhanced as it is in this instance by its delicacy and grace of manner."

THE GOLDEN AND THE SILVER PHEASANTS.

(Continued from page 386.)

M. TEMMINCK's history of the Golden Pheasant, is as follows:—

"The species golden pheasant, if we are to believe Buffon, is only another variety of the common pheasant, which has increased in beauty under the influence of a finer climate. This opinion, which no naturalist has since adopted, is in reality erroneous. The knowledge spread by the light of the discoveries in natural history every day opens our eyes to similar errors; it requires that those who are tracing the history of animals inhabiting foreign, or little-known countries, should state nothing at random, by attributing to these species relationships with those which surround us, especially when the external forms do not assist in confirming such affinities. Buffon, doubtless, would not have committed this error had he been informed that the golden pheasant lives and breeds in the same country as the common pheasant; that this latter, extremely common in the north of China, has there retained the same forms, and the same colours, as in our own climate, and that in a wild state it never intermingles with the golden pheasant.

"The golden pheasant is tolerably common in our menageries, still not so much so as either the silver or the ring-necked pheasant, both of which are of a more robust nature, resisting better the humidity of our climate. Golden pheasants are much more delicate, and more difficult to rear, but the manner of treatment is the same. *In captivity more males are commonly hatched than females* (consequently there is a superabundance of cocks in the market).

"The entire length of the male is two feet (*pieds*) ten inches (*pouces*), the tail alone twenty-three inches; the upper part of the head is covered with loose-webbed feathers, of a beautiful yellow; the sides of the head or the cheeks have small feathers thinly sprinkled over the skin, the colour of which is livid; the feathers of the occiput are elongated, and extend over the sides of the neck in the form of a mantelet or capuchin; at the tip they are cut at right angles by a brilliant orange, and striped transversely with black; the bird has the power of erecting these feathers as cocks do when they are fighting.

"The feathers of the nape of the neck are of a beautiful golden-green, terminating in a black band; the back and the rump are of a brilliant yellow; the upper coverts of the tail are of the same colour, ending in scarlet-red; the throat is of a rufous red; the front of the neck, the breast, and all the other lower parts, are of a lovely scarlet; the scapulars are deep blue, changing into a vivid violet; the secondary feathers and the wing coverts have different tints of chestnut and brown; the quill-feathers are brown, marked with reddish spots, their outer margin is of this latter colour; the tail feathers are hollowed out like a reversed gutter (*évassés en gouttière renversée*), they are united in a bundle, and all the lateral feathers are, as it were, embraced by the two middle feathers; these are longer than the others, which gradually decrease; they are variegated, and as it were, marbled with chestnut and black, the lateral feathers are striped obliquely with chestnut and black; above the tail-feathers, other long and straight ones spring, of a beautiful scarlet; the iris is of a dazzling yellow; the bill and feet are of a clear yellow; the tarsus has a spur.

"The female is a little smaller than the male, the feathers of the head are elongated, and the bird is able to raise them in the form of a crest. The upper parts of the head and neck, the back, the rump, the wing coverts, and those above the tail, are of a brown, more or less reddish; the throat is whitish, all the other lower parts are of a clear or yellowish brown, varied with brown spots; the feathers of the wings, and those of the tail, are of the same colour as those of the back, but they have transverse black bands; the tail, which is shorter than that of the male, is brown, the middle feathers have black bands, and the others have irregular marks of the same colour; the iris is yellowish hazel; the bill and feet are yellow.

"The food to be given to Chinese pheasants consists of rice, hemp seed, wheat, or barley; they eat also red cabbages, grass, leaves, fruits, particularly plums and pears, insects are their favourite repast; *this last article of diet is so*

necessary to them, that the impossibility of procuring it is the sole cause of the numerous maladies to which they are subject.

"The flesh of these birds, in taste resembling that of the common pheasant, is yellowish, as well as the bones.

"The golden pheasant lays earlier in the spring than the common pheasant, and frequently in the month of March, whereas the common pheasant does not lay till April; it is necessary, therefore, to mate the golden species in February, as soon as they show any tendency to form an attachment; incubation lasts twenty-three days. When the female golden pheasant is closely confined, it is rare that she takes much care of her brood, but at liberty, or in an extensive inclosure, she is very solicitous about the welfare of her little ones.

"The young differ much from their parents in the colour of their plumage; in their first year, till they are a year old, they are of a yellowish-grey, transversely striped with brown. The following year the males may be distinguished from the females by the deeper colours of the former; it is not till the third year that the male is clad in his brilliant plumage. The aged hens, like those of all the other species of pheasants, are liable to assume the lining of the male; but these changes of plumage are rather rare.

"The eggs of the golden pheasant much resemble those of the Guinea-fowl. They are smaller in proportion than those of the common hen, and of a redder hue than those of our pheasants.

"The golden pheasant is a native of China, where it bears the name of *kinki*. This species would long ago have been more common in Europe, if amateurs had not persisted in rearing them in too strict a captivity, and continued to lavish on the young uncalled for attentions, which they would do better without. By granting them a greater degree of liberty, especially by exposing them more to the inclemencies of the open air, even during winter, the result would be that the species, as it increased, would become more hardy, and in the end would become able to support the cold of our climate. The experiment has been made in Germany, in an extensive pheasantry, where these birds have lived at liberty along with common pheasants, and have not suffered more than them from the change of seasons." D.

BEE HOUSES.

I AM afraid, much as I should wish to see the American bee-house (modified according to my suggestions) generally adopted, that its necessary expense will place it beyond the reach of cottagers generally; for "a Country Vicar's" satisfaction, however, I will, with pleasure, give as particular a description of it as I can, including an improvement or two which have suggested themselves to my mind since I first drew the attention of your apian readers to the subject.

In the first place, it should have four stout upright posts, of durable wood, well seasoned, each post not less than three inches square; two of them, those in front, being six feet high, those at the back seven feet high. At eighteen inches from the ground, these posts should be joined together by four horizontal bars, three inches deep, each, by two inches or so wide, two of which (those in front and behind) are six feet long, and the two others, at the sides, four feet long each; * there must also be a cross-bar, or tie-beam, connecting the longer bars in the middle, to support the board on which the boxes rest. In the case of my own house, I have it put together with *screws*, so as to facilitate its dismemberment and removal at any time. At exactly two feet higher up, the posts are again connected together by the same number of similar horizontal bars, with tie-beams as before. Also, the posts are joined together at the top—again just two feet higher up—by the same system of bars exactly, upon which the roof is supported; in fact, all the uppermost bars form an integral part of the roof itself, which consists of planks of wood overlapping one another, and nailed to the uppermost bars, of which the three shorter ones are cut saw or step-like, in such a manner that the planks overlap one another (say about an inch) naturally, i.e. without leaving any apertures for the wind or rain to intrude into the house clandestinely. A stout piece of wood,

* Of course the length may be of any extent, but the house ought to be about four feet wide—neither more nor less.

about three inches broad, and extending the whole length of the house, should be nailed to the ends of the shorter bars behind, so as to cover any gap, if any exists, between the roof and the back of the house itself. It will be seen, so far, that the roof is a *distinct whole* of itself, and lifts off like a cap; moreover, the tops of the posts run into sockets, or grooves, made to receive them in the cross bars at each corner of the roof. To have done with the roof, I would here observe that I allow a fall of one foot in the four feet from back to front, and I would recommend it to project a few inches all round, but especially in front and at the sides.

To proceed; the *sides* are closely boarded the whole way, from the lower cross-bars upwards, a space being left perfectly open beneath the lowermost tier of hives, to promote dryness and cleanliness. At the *back*, it must be so contrived (either by double doors, opening right and left, and fastened by lock and key, or by swing-doors, suspended on hinges, and secured by padlocks) that the whole of the house shall be open to the bee-master at pleasure, it being of importance that nothing should hinder him from getting easily at any and every hive. In my own case I have adopted the swing doors as more economical. They should be strengthened by bars nailed crosswise, at intervals, against their inner side.

Turn we now to the *front* of the house. I have recommended a space of two feet clear to be left between each set of horizontal bars (for which, in the above specification, I have made allowance), and between the upper bars and the front part of the roof, which space is thus dealt with: the upper nine inches, in either case, are permanently closed by a board extending the whole front length of the house, and nailed or screwed to the upright posts at either side. The next nine inches are occupied by a precisely similar board, only that this board is not secured permanently to the posts, but swings on hinges, and is fastened by padlocks within-side whenever, as in winter, it is required to close the house, or in the heat of summer; at other times, when the hives are pushed forward to receive the benefit of the spring sun, this board is lifted up, and kept open by "hooks and eyes," or some such contrivance. Thus, of the whole space of two feet only the lowermost six inches are left open permanently. The hives stand on boards made two feet wide, which rest, both above and below, on the three cross-bars or tie-beams, and are so constructed as to slip backwards and forwards with ease. The hives may either stand directly on these boards, or have each their own separate floors, which I much prefer.

With a little contrivance, such a bee-house as the one whose dimensions I have given might easily accommodate eight colonies of bees, if an exit was supplied to the outermost colony at the east or west side of the house. It remains for me to add that the four posts at their base are let into sockets made for them in large blocks of wood, five or six feet in length, to steady the house, which are only partially buried in the earth. Every board, too, should, if possible, be of *inch* stuff.—A COUNTRY CURATE.

WHAT ABOUT THE POULTRY EXHIBITION IN LONDON?

WHAT about the show in London? is a question which many anxiously ask, and none can fully answer. There is sufficient enquiry and solicitude about it, to show that it will be well supported, and very welcome when it does come, but nothing definite appears to have been arranged at present. Every one seems desirous to receive intelligence concerning this interesting exhibition; few are able to give much. Many amateurs are willing to raise specimens, which they hope will do honour to the great metropolis; but what gentleman or gentlemen, with leisure at command, will kindly undertake the arrangement and management? Like the amiable Rosa Dartle, I ask for information. What are to be its laws? Where will it be held? and at what period will it take place?

Some observations made by "Incubator," which were published in THE COTTAGE GARDENER, a few weeks back, confirmed me in an opinion which I had long entertained, that those amateurs who bestow time, trouble, and expense, in raising fine fowls for exhibition, and for the purpose of im-

proving the various varieties on which they bestow their attention, stand greatly in need of some fixed rules—some standard of excellence for each kind of fowl. The same person is seldom conversant with many different kinds of poultry; those, for instance, who are most intimately acquainted with the Cochín-China, may have little knowledge of the Malay. If different persons would furnish good descriptions of the fowls which they may best understand, subject to the approval of a committee, the trouble and probable expense which this arrangement might occasion, would, I believe, be amply repaid. Amateurs would no longer work in the dark, and the rules thus laid down, having undergone sufficient consideration, would become a standard of permanent utility.

An exhibition of poultry in London is certainly much wanted. Birmingham, with its splendid show, lies at the end of a tiring and expensive journey from our part of the world; the meeting of the Royal Agricultural Society (to be held this year at Lewes), will occur at a time which is very likely to exclude the possibility, in many instances, of choosing the specimens well, for most hens are perversely bent on taking their own way, quite independent of agricultural meetings, and will sit late, or moult early, whatever their owners may wish to the contrary, with a bold indifference to fame, the honour of the country, or the admiration of the poultry world.

I believe the period when the Birmingham show takes place can scarcely be improved upon. It would be difficult to find any time earlier in the year which would not interfere with the important business of sitting and raising chickens, and the preservation of (in many instances valuable) eggs, or else present the fowls under the unsightly circumstances of a ragged, worn-out wardrobe.

Will it be considered out of place to remark, that, if we have a show in London, I do not think we could do better than appoint Mr. Baily one of the judges. If applied to, I believe he would not refuse to accept the office. He is on the spot; he is an excellent judge; he is one whose fair dealing, great experience, and good knowledge of poultry, are too well known and appreciated to need a word from me. In giving this opinion, mine is, of course, only one voice among many.

Fowls—creatures which not long ago were nothings and nobodies in the country, so insignificant, that they have even received no particular name to distinguish them from the other gallinaceous tribes—are, from the attention now bestowed upon them, gaining an agricultural and statistical, as well as a domestic importance among us. The quantity of food returned for the outlay where good sorts are well managed, renders this branch of economy well worth following out to a much higher degree of improvement than it has at present reached. Now, the fancier only possesses the choicest and most productive kinds; the fowls which we see running in farm-yards, fields, streets, and lanes, are generally as small, as poor, as scanty layers of poor eggs (I was going to add, as ugly, but I do not think any happy hen in good feather can be so called) as they were before the Spanish and Cochín-China kinds were introduced, and while the pretty Poland, Every-day-layer, and numerous other good sorts were little known.

With poultry exhibitions frequently occurring, and presenting such opportunities of comparing notes, and of showing the progress which has been made, the stock in the country must generally improve, and we shall soon no more hear owners of fowls complaining that their eggs cost them six-pence each.

The advantages resulting from this improvement of poultry in general, and cocks and hens in particular, scarcely yet receive due weight even among those who give their best attention to the subject; and far from the least of these advantages is, that it offers an interesting amusement and a useful pursuit for ladies. That it has done so in many instances, is evidenced by several insertions which grace the catalogues of the exhibitions at Birmingham, and elsewhere; and other cases are known where the poultry have been the charge of the lady, although she may have preferred showing in the name of the head of the family. ANSTER BONX.

TRANSPORT OF HIVES.

I AM reminded, by the information occasionally sought just now in your columns, that this is the season when most bee-keepers prefer to remove their hives, if desirable, from one place to another. Perhaps the following plan of packing and carriage of a couple of box hives, superintended by me last November, may not be unacceptable to your readers. It is most suitable for trial at this season, when hives are getting light in weight.

Each hive was placed on a separate bottom-board, furnished with a square hole at bottom, closed by a perforated zinc slide. Several rings were secured to each board, with pieces of whipcord attached, and gathered together in a knot over the hive. Each hive (its entrance being of course well closed up) was then taken up and slipped into a square box (any old tea-chest will do very well), a few inches larger every way than the hive itself, and furnished with a square hole at its bottom, to correspond with the aperture in the floor-board. A little hay was first put in for the hive-board to rest upon, taking care, however, to leave the holes free; More hay was then thrust in between the sides of the boxes and over the hive before the top was screwed down. Both boxes were then corded in the usual way, and suspended to the under side of a luggage van, and so they travelled some 50 miles or more. On examination at their journey's end, not more than three or four bees were found dead in each hive, and no damage of any kind had been done. I would recommend a trial of the above plan, however, only when the whole contents of a hive fell short of 15 lbs. weight, for large and heavy combs might, and very probably would, become disengaged by an awkward jolt, to which luggage vans are of course frequently liable. If suspended to vans for carriage by rail, I should anticipate very little danger in the transport of hives of any weight. Whatever be the value of the above facts they are at the service of the public.—A COUNTRY CURATE.

SHORT NOTICES.

THE interesting article on "Packing Fruit-Trees for Exportation," in THE COTTAGE GARDENER of February 26, and written by your coadjutor, D. Beaton, reminded me of an account given in "Darwin's Zoological Researches," page 297 (published by Murray), of the apple orchards in Chiloe. "The village of Valdivia is situated on the low banks of a stream, and is so completely buried in a wood of apple-trees that the streets are merely paths in an orchard. I have never seen any country where apple-trees appear to thrive so well as in the damp part of South America; on the borders of the roads there are many young trees evidently self-sown. In Chiloe the inhabitants possess a marvellously short method of making an orchard: at the lower part of almost every branch, small, conical, brown, wrinkled points project; these are always ready to change into roots, as may sometimes be seen where any mud has been accidentally splashed against the tree. A branch as thick as a man's thigh is chosen in the early spring, and is cut off just beneath a group of these points; all the smaller branches are lopped off, and it is then placed about two feet deep in the ground. During the ensuing summer the stump throws out long shoots, and sometimes even bears fruit; I was shown one which had produced as many as twenty-three apples, but this was thought very unusual. In the third season the stump is changed (as I have myself seen) into a well-wooded tree, loaded with fruit. An old man near Valdivia illustrated this motto, 'Necesidad es la madre del invencion,' by giving an account of the several useful things he manufactured from his apples: after making cider, and likewise wine, he extracted from the refuse a white and finely-flavoured spirit; by another process he procured a sweet treacle, or, as he called it, honey; his children and pigs seemed almost to live at this season of the year in his orchard." Now this mode of raising apple-trees, though, perhaps, not new to some of our scientific horticulturists, is certainly not generally practised in England, and may suggest experiments being tried with other trees of analogous growth. If suitably selected and prepared branches were packed in the manner described by your D. Beaton, might not the warmth of the tropics induce vegetation

during the voyage, and render them fit for immediate planting on arriving at their destination?

At page 290 of the same volume, Darwin again remarks, "In passing over a bold, rocky hill, I found it covered with a plant allied, I believe, to a *Bromelia*, and called by the inhabitants of Chiloe *Chepones*. In scrambling through the beds our hands were very much scratched. I was amused by observing the precaution our Indian guide took in turning up his trousers, thinking that they were more delicate than his own hard skin. This plant bears a fruit, in shape like an artichoke, in which a number of seed-vessels are packed; these contain a pleasant, sweet pulp, here much esteemed. I saw, at Louis Harbour, the Chilotans making cider with this fruit. So true is it, as Humboldt remarks, that almost every man finds means of preparing some kind of beverage from the vegetable kingdom." Query—What plant is it?

The Author of the "History of the Mormons," a work published in the series of the National Illustrated Library, says, in speaking of their location in the Great Salt Lake Valley, near California, "The finest pastures of Lombardy are not more estimable than those on the east side of the Utah Lake and Jordan River. We find here that cereal anomaly, the *Bunch Grass*. In May, when the other grasses push, this fine plant dries upon its stalk, and becomes a light yellow straw, full of flavour and nourishment; it continues thus, through what are the dry months of the climate, till January, and then starts with vigorous growth, like that of our own winter wheat in April, which keep on until the return of another May. Whether as straw or grass, the cattle fatten on it the year round. The numerous little dells and sheltered spots that are found in the mountains are excellent sheep-walks; it is said that the wool which is grown upon them is of an unusually fine pile and soft texture. Hogs fatten on a succulent bulb or tuber called the *Seuroe* or *Seagase Root*, which I hope will soon be naturalized in England. It is highly esteemed as a table-vegetable by Mormons and Indians, and I remark that they are cultivating it with interest at the French Garden of Plants."

Have we either of the above plants? If so, under what name; where cultivated; and with what success? The numerous and beautiful varieties of flowers which have found their way to us from California, induce the belief that they might be grown in England with advantage.—S. P., *Rushmere*.

BEEES DESERTING THEIR HIVE.

I WRITE to inform you of a singular occurrence, which neither I nor my neighbours can account for; and to enable you to judge more accurately of the probable healthy condition the bees must be in when they deserted the hive, I send you below an extract from my "Bee Journal" from the period of their swarming, and shall feel obliged if you will publish it, being anxious it should be brought to the attention of the various bee fanciers and amateurs who write so ably in *THE COTTAGE GARDENER*, in the hope that they will study the facts as related, and observe upon the probable cause for such desertion, which will doubtless not only be interesting but valuable to the public, in enabling them to guard against a future loss under similar circumstances.

1850.—The bees in question were swarmed from a very healthy stock on 28th May, 1850.

June 24.—Put bell-glass thereon.

July 15.—Heightened the hive two inches from the stone, to prevent their swarming, as they hung out, and showed symptoms, the weather being sultry, and it was deemed too late in the season for a swarm to do well.

1851: May 5.—Fed them with honey for ten or fourteen days, the weather being snowy, with cold winds and sleet. (Note. The first open summer's day was May 13.)

Mem.—The season was so unkind that the above never swarmed, nor did either of my two other hives, notwithstanding the whole face the south, and are in a garden and lawn abounding with flowers the whole of the year except just the winter months.

May 10.—Lowered the hive to its original standard, to encourage them to swarm.

October 24.—The above hive (which is above the cot-tagers' size) was weighed, with the glass and small top

straw hive affixed thereon, and the whole were 32 lbs., of which 15 lbs. must be deducted for the two hives, bell-glass, &c., and the net weight will be 17 lbs. for honey and combs, which was considered strong enough not to require autumn feeding, and which idea proves correct, as the lower hive is full of combs, and in the upper part is plenty of honey at this time (March 10, 1852). The site is quite detached, and open to the fields and surrounding country; stands lofty, but the air is pure, and not contaminated by town smoke or nuisances.

1852: March 4.—Attention having been given this month to supplying them with water, and not seeing the above at work, as was the case only two days before with all my three stocks, which stand at a distance from each other, being in different parts of the lawn, but face the same aspect, the day being dry and the sun powerful, the hives and glass were taken off the stone, when five dead bees were all that the combs contained, and thirty-nine dead ones were lying on the stone, with a little scattering of wax, and not a live bee was to be found, and the queen's cells were also deserted, nor was she among the dead ones remaining. From not swarming last year there ought to have been a strong one in 1852.

Note.—The bees have not the appearance of being famished, and, what is still more remarkable, all the combs are in excellent, clean, and sweet condition, free from any black appearance, or any offensive smells from mould, or damp, nor is there any on the interior of the stone or the combs. There are also no severed heads, wings, or other parts, as would have been the case had the stock fallen a prey to any vermin or earwigs, and so perfect and clean is the interior of the hive, and well filled with comb and a fourth part with honey, that the glass super hive (in which the bees never worked, but only occasionally went up for air and room in the summer), is taken off, the top centre opening of the lower hive closed over with lead, and the bottom and mouth, or entrance, plaistered up air tight (except what searches through the straw) and it is intended not to re-open it until for hiving the first swarm of the current year. This swarm, on finding excellent combs, and part filled with honey, it is deemed probable may prove such an attraction and assistance to the new occupants (if they take to it) as to enable them to form a swarm from themselves, generally called a "maiden swarm," if the season proves genial for such an event. I omitted to say the above have been covered all along with a good wheat-straw hackle, made before the straw was thrashed, and which is perfectly sound, warm, and weatherproof.—VERAX.

[Our correspondent, who lives near Cheltenham, will see that Mr. Payne complains to-day of bees deserting their hives this season more than usually; he will also see what Mr. Newman says on the subject.—ED. C. G.]

POULTRY PRIZES.

WE are glad to find that the *Royal Agricultural Society*, keeping pace with the rising attention now prevailing for the improvement of the tenants of the poultry-yard, have adopted the following Poultry Prizes, for Poultry to be exhibited at the Lewes Meeting in July next.

1. FOWLS.—(1). To the owner of the best cock and two hens of the *Dorking* (white, speckled, or grey), *Surrey*, or *old Sussex*, or *Kent*, £5. To the owner of the second best, £3. To the owner of the third best, £2. (2). To the owner of the best cock and two hens of the *Malay*, *Cochin-China*, or other *Asiatic breed*, £3. To the owner of the second best, £2. (3). To the owner of the best cock and two hens of the *Spanish*, *Hamburg*, or *Polish breed*, £3. To the owner of the second best, £2. (4). To the owner of the best cock and two hens of any other pure breed, £3. To the owner of the second best, £2. (5). To the owner of the best cock and two hens of any mixed breed, £3. To the owner of the second best, £2.

2. TURKEYS.—(1). To the owner of the best cock and two hen turkeys, £4. To the owner of the second best, £2.

3. GEES.—(1). To the owner of the best gander and two geese, £3. To the owner of the second best, £2.

4. DUCKS.—(1). To the owner of the best drake and two ducks of the *Aylesbury* or any other white variety, £2. To

the owner of the second best, £1. (2). To the owner of the best drake and two ducks of any other good variety, £2. To the owner of the second best, £1.

5. GUINEA FOWLS.—(1). To the owner of the best cock and two hen Guinea fowls, £2. To the owner of the second best, £1.

The following special regulations are adopted:—

1. That the certificate form be similar to the general form hitherto used by the Society, making the requisite adaptations in its terms.

2. That the Poultry be subject to all general regulations of the Society's Shows, and be sent to and removed from the Show-yard at the same time as the other live stock.

3. That the Directors and Stewards of the Yard be requested to appoint a person specially to the Poultry Department.

4. That the coops for the exhibition of the Poultry be provided by the Society.

5. That the Honorary Director be desired, in his plan of the Yard, to include arrangements for the requisite accommodation of the Poultry.

PRACTICAL OBSERVATIONS ON THE MANAGEMENT OF BEES.

By Henry Newman Newman, Esq.

ARTIFICIAL SWARMS.

ARTIFICIAL SWARMS are much more difficult to obtain than many of the writers choose to admit. The only way in which I ever succeeded was the following, and these are very rarely to be met with.

A swarm went off last summer, in my absence, and settled on the side of a strange hive. A man in my employ, on examining the cluster a long time after they had settled, discovered a queen, which he instantly seized, and taking her, and about twenty or thirty bees, in his hand, placed them in an empty hive near; in about two minutes the swarm left the place, and went into the hive and commenced working. This is what may be called a legitimate artificial swarm. Another instance occurred three years ago, when an old stock had then been hanging out for a fortnight in an immense cluster. At this time I had one stock which was in a dying state, and, without at the moment thinking of the outlying stock, I examined the decayed hive, and found about a hundred bees in the top. Among them was a very lively queen; I shook the bees out on the grass and seized the queen, placing her on the floor of the outlying stock, as I have mentioned elsewhere; she was, after a little consultation, received amongst the bees, and the next day a swarm came off.

I do not agree with the theories about artificial swarming mentioned by many writers, who make this the most easy matter in the world; I believe that, in truth, it does not succeed once in a hundred times. It is very easy to talk of cutting some comb out of a full hive in the summer, then getting hold of a queen, and inducing the young bees to quit their domicile afterwards; but I am certain that success very rarely can attend such an experiment.

CAPRICE OF BEES IN SWARMING.

After the greatest pains taken by the apiarian, it frequently happens that bees will not settle themselves in a hive. As this is much oftener the case in very hot weather, when they are much more restless, some writers recommend changing the hives; but this will not answer; I have known them leave different hives three times after they had ascended. If the queen is not with them they will never stay above a minute or two in a hive. There is little doubt a nasty or dirty hive of any sort is very offensive to them; I have already noticed a swarm deserting a hive because a little tarry twine had been used in sewing the hive together. Some writers recommend a new hive being used always, but this I have found from experience is no security, as they often seem to dislike a new hive, and will not enter it or stay in it. I firmly believe if the weather be scorching hot they will often be dissatisfied with any hive.

PECULIARITIES AND MANAGEMENT OF SHANGHAI AND OCHIN-CHINA FOWLS.

THESE birds seem to have attracted the attention of amateurs more than any other description of poultry of late years, and justly so, if weight, prolificacy, and attention to hatching and rearing their young, are desiderata; but though I have been much pleased with "Anster Bonn's" remarks on them in your periodical, I have not noticed any account of the peculiarities of this breed of birds, and as some who may have read much about them may not yet have the stock, I will, with your permission, mention a few.

One great peculiarity is their exceeding tameness; they are, in fact, quite a domestic animal—feeding from the hand, and allowing themselves to be handled with the most perfect composure. Another peculiarity is that they do not feather like other poultry. Last summer I recollect a lady looking at mine, and saying—"Poor things! how badly they (the chicks) must have been used; there is hardly a feather on them, and they have got no tails." This seemed to be the climax of compassion, and she seemed very much surprised at my considering it the greatest beauty in my eyes. The feathers to the toes seemed also to surprise her; and as people have been so accustomed to see clean-legged poultry, and plenty of tail, it is some time before they get accustomed to these eccentricities; but when the eye has become used to these peculiarities, what nobler sight can be seen in the poultry-yard than these splendid birds—the cock birds weighing from 10 to 12 lbs. each, and the hens from 8 to 9 lbs; well-feathered to the toes, and with the fluff on the thighs and hinder parts almost touching the ground?

Another peculiarity is the crow of the cock birds, for it is quite dissimilar from the usual note of the common chattering, ending as it does with a note like the growl of a dog; and I am assured by several parties that they hear my bird crow at two miles distance. The feathers of the wings, also, are short and well-doubled under, or clipped, which entirely prevents their flying or getting over a fence a few feet high.

I would now say a few words to those who are about hatching and rearing these birds. First of all, set your hens early; now is the best time, as they will have a chance of fine open weather in April, and will make much finer birds in the autumn than those hatched later. The next thing is to infuse fresh blood into your stock, either by purchasing a fine young cock, or eggs, from some party you can depend upon, but by no means, if you can avoid it, have them from town, as the birds are cooped up in small, unhealthy places, where they become ill, and from them, although they may be fine birds, a healthy progeny can hardly be expected, if the eggs hatch at all. Endeavour to obtain the eggs from the country, and, if possible, see the parents. The eggs will travel perfectly safe if placed in a box, with the large end of the egg uppermost, and well-bedded in bran, not sawdust, as the turpentine may injuriously affect the eggs.

In conclusion, I would give my opinion as to what constitutes fine specimens of this bird. The cocks should be bold, upright fellows, square built, well-feathered on the leg and thigh, with only a bunch for a tail, and with a bright crimson saddle, and long golden-reddish feathers falling over each side of the back, just beyond the wings. The hens should have a very small tail, but the fluffiness of the thigh is more marked in them than in the male bird. At another time I shall be glad to give you my views for constructing a hen-house, &c.—HENRY COPLAND, *Chelmsford*.

THE DOMESTIC PIGEON.

(Continued from page 345.)

FOOD FOR PIGEONS.

"As soon as the month of October arrives," says M. Vieillot, "and the wild pigeons begin to feel the effect of the cold, all those in one part of our southern provinces quit their country, and come and take possession of the pigeon-houses of the Lower Provence, where there are some fountains of salt water; they profit by the food given them, return home, and at the approach of spring revisit their native country, where they make frequent and continued

neats." It is needless to tell amateurs that in the countries where those fountains are to be met with, and in those places near the sea, we may dispense with giving them salt.

The amateur should have some method with regard to feeding his pigeons. Those belonging to the dove-house are endowed with the talent of discovering it themselves in the country, during the whole of the fine season; it would, therefore, be useless to furnish them with it at that time. However, it is necessary to distribute some to them occasionally, to attach them to their home. It is also a means of taming them, which is very advantageous, because they are less frightened when we enter their dove-house. They should be fed at stated hours, and be summoned by whistling, or calling them, and always in the same manner. They become so accustomed to it, that it is not unusual to see them come from some distance, surround the distributor, and even alight on his arms and head. They are very fearful of rain and stormy weather, and remain in their dove-house, unless obliged by hunger to leave it. It is then indispensably necessary to give them a sufficient quantity of grain for their nutriment; if this is neglected, they will, after a few days' fasting, enter some neighbouring dove-house, where they can find food, and, it is much to be feared, will never return to their own. We must begin to feed them regularly about the end of November, a little sooner or later according to the climate, and continue to do so till the month of February at least.

It is surprising how long a pigeon can remain without eating, when deprived of light. To prove this we shall here relate a most singular fact, told by M. Corbié, who was an eye-witness. An individual visited the pigeon market at the hall of St. Germans; he bought a young pigeon there that he did not consider of much value, and, as he did not like the trouble of carrying it in his hand, he put it into the pocket of his riding-coat. Different circumstances having prevented his return home until a late hour, he entirely forgot the unfortunate prisoner, took off his riding-coat, hung it on a peg, and thought no more about it during the whole week. The Sunday following he wanted to wear this garment, and on taking it down, and looking into the pocket, discovered the pigeon full of life and health. He immediately put it with the others, and in a quarter-of-an-hour's time no trace was seen of this bird's forced abstinence. The most surprising thing is, that darkness appears to enable them to sustain so long a fast; for if they are deprived of food, and left in the light, they do not survive more than two or three days, at most.

The hours at which pigeons ought to be fed have been determined. In the morning, as soon as they leave the dove-house, or dove-cote, we must give them the first distribution; but as the females that are setting do not leave their eggs till about eleven o'clock, to return again at three, it will be necessary to reserve some grain for them, which should be distributed about half after two, but never at twelve, because these birds are accustomed to sleep at that hour, and it would at least be useless to disturb them. The third distribution should take place very nearly an hour before night. It is necessary to calculate the quantity of grain given them by the number of pigeons, and, above all, not to give them too much during the fine season, because abundance makes them idle, and they lose the habit of seeking their own subsistence in the country. During summer, or in dry weather, the grain may be thrown to them outside the dove-house, but as close to it as possible, in a place prepared for the purpose by removing from it all weeds and stones; during rains, and bad weather, we must give it them inside the dove-house, or dove-cote.

Many amateurs do not consider the quantity of food their birds can find in the fields, and therefore feed them abundantly in the dove-cote; in these cases it is not necessary to supply them with daily distributions—it is sufficient to put the grain into a trough, placed in the cleanest part of their residence, and to fill it as soon as empty. This trough requires to be made in a particular form, for the description of which we shall refer our readers to the article entitled "Utensils of the Dove-cote." It is the same with regard to the vessel in which the water is given them. Although but little water is given them, except in the dove-cotes, we think that those persons who possess a dove-house in a dry and barren country would do well to place there two or three

vessels, like those described in the article "Utensils of the Dove-cote," but of larger dimensions. We may, however, content ourselves by placing close to the dove-house stone troughs, which must be filled every two or three days, taking the necessary precaution of keeping them very clean. We shall observe that they should always be kept full, to enable the pigeons easily to reach the water when resting on the edge of it. In both cases we must be very careful to break the ice two or three times a day during winter, and to change the water more frequently. If there should be in the neighbourhood a running stream of water which never freezes, this precaution would not be so necessary, but still it would always be useful. They not only require water to satisfy their thirst, but also to keep them clean. They are very fond of rolling themselves in the dirt, to get rid of insects, with which they are frequently troubled, and afterwards they will go and bathe, if they can find a convenient place to do so. We must manage this for them by placing a tub of water near, not more than two or three inches deep. If they are captive, the tub must be placed in the dove-cote; but should they be free it may be set outside, although as near as possible, because when the large species have their feathers charged with water they have great difficulty in flying to regain their pigeon-house, and the cats take advantage of this moment to pounce upon them.

(To be continued.)

DOMESTIC PIGEONS.

NINETEENTH RACE.

CARRIER PIGEONS (*Columba tabellaria*).—By a singularity which I cannot explain, we here find a race of pigeons the most common, as well as the most ancient, and yet of which no author has spoken. My reason for thinking this race so very ancient, and that it has always been as common as it is at the present day, is, that on all ancient monuments where Venus is represented in a chariot drawn by doves, it may easily be discovered that the Carrier pigeons were taken as models by the painters and sculptors by whom they were executed.

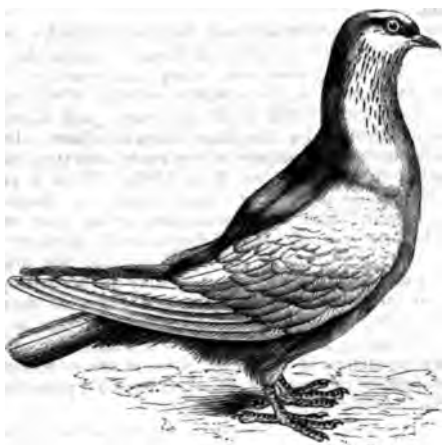
These pigeons are small, and have no tubercles on the nostrils. They have a slight red filament round the eyes, a whitish iris, and naked feet, except one variety. Their plumage partakes of all the common colours of the pigeon. This is the most fruitful of all the races, and shows the greatest attachment for the place where it is born. Deceitful merchants take advantage of the knowledge they have of this quality to speculate on these birds. When a person wants to purchase them, they cleverly find out whether he intends keeping them in confinement, or an open aviary, and fix the price accordingly. If they know he destines them to stock a dove-cote, they do not mind reducing the price to half, because, whatever the distance may be that they are carried, or the care taken of them, and the time they are kept prisoners, they are quite sure that, as soon as they have their liberty, the first use they will make of it will be to return to their old dwelling. One of these merchants acknowledged to me one day, on showing me a pair, that he had already sold it three or four times.

We shall advise those who intend to erect a dove-house to stock it with the Carriers. They fly with rapidity, and have the power to escape the pursuit of birds of prey; they go a great distance in search of food, and consequently do not cost much for grain.

FLYING MESSENGER PIGEON (*Columba tabellaria volans*).—The colours are grey, blue, red, yellow, speckled black and white. There are some which have the whole body of one of these colours, with a white tail; others have the tail and flight white; others, again, have only the large quill feathers of the wings white. This bird, which is interesting for its great fecundity, is at the present time one of the most common. The blue very much resembles the stock-dove, but still differ from it in their shape, which is longer and more slight, and also in their long and slender head, which is rendered more interesting by their sharp eyes and white iris. They fly very light and high, and have the sagacity of always recognising their dove-house in the middle of the innumerable chimneys of the capital, where they are greatly multiplied. Although their dwelling be placed at the bottom

of an obscure court, surrounded on all sides by high buildings, this pigeon rises up above the top of the highest edifice, hovers an instant aloft, and then returns to that dwelling, plunging on to it almost vertically. According to all appearances, this is the pigeon that was formerly made use of in the east to carry despatches; and those authors who pretend that it was a Roman pigeon have doubtless not considered, that among all these birds they would, in that case, have chosen the one least calculated to perform the duty; besides, they have not consulted the ancient monuments, which would have shown them their mistake, since, as we have before said, all sculptors represent the Carriers in all its forms and details. Be this as it may, the sailors of Egypt, Cyprus, and Candia, rear this kind of pigeon on board their vessels, for the purpose of setting them at liberty, says Belon, when they approach land, to announce their arrival to their friends. Another author says—"In the east, especially in Syria, Arabia, and Egypt, they train pigeons to carry letters under their wings, and to bring back the answer to those that have sent them. The Mogul rears pigeons which carry letters on such occasions when great speed is necessary. The consul of Alexandria makes use of this means to send news quickly to Aleppo. The caravans which travel in Arabia communicate their march to the chief Arabs with which they are allied in the same manner. These birds fly with an extraordinary rapidity, and return with as much diligence to the place where they have been born, and where their nests are. These birds are sometimes seen lying on the sand, with their beak open, waiting for the dew to refresh them, and to recover breath." According to Pliny, pigeons had already been made use of to send letters to Modena, besieged by Mark Antony. The custom was renewed in Holland in 1574; the Prince of Orange, after the raising of the siege of this last place, wanted these pigeons to be fed at the public expense, in an aviary made expressly for the purpose; and when they died, that they should be embalmed, and kept at the Hotel de Ville as a perpetual sign of thankfulness.

RED-NECKED CARRIER (*Columba tabellaria collo rubicundo*).



—This bird, originally from Liege, has an eye of an enamel white, and carries on its neck some feathers streaked with red. The rapidity and lightness of its flight equals the preceding; it may be employed for the same purpose, although its habit of rising very high in the air sometimes renders it a victim to the birds of prey.

ENGLISH CARRIER PIGEON (*Columba tabellaria Britannia*).—This differs essentially from the preceding in its feet, which are thickly furnished with feathers; it is black, with the cloak and wings white, tinted with rose-colour when seen in the sun; the bar is black.

DUTCH CARRIER PIGEON (*Columba tabellaria Batavica*).—This very much resembles the preceding, but its feet are not so thickly furnished with feathers, and it has a white plumage, tinted with rose-colour in the sun, with the bar, or end, sometimes black. This charming variety has always been very scarce, and perhaps at the present day it is even lost.

WHITE-BARRD CARRIER PIGEON (*Columba tabellaria lineata candida*).—It has the form of the common Carrier, but its plumage is entirely black, with the exception of the two bars on the wings, which are pure white; it has a black iris and naked feet. These charming birds are become extremely rare in France, and we have only seen them at M. Cartie's, one of the most distinguished amateurs in the capital.

CRESTED CARRIER PIGEON (*Columba tabellaria cristata*).—The Germans possess this variety in great abundance, but it is not yet become common in France. They are blue, black, red, yellow, or, but rarely, speckled black and white; it produces well.

SILKY CARRIER PIGEON (*Columba tabellaria setacea*).—This singular variety has only been known a short time. The beards of its feathers are separate, pendant, and soft, which deprives this bird of the faculty of flying; and, although it produces well, it will doubtless never be multiplied but as an object of curiosity.

(To be continued.)

TO CORRESPONDENTS.

. We request that no one will write to the departmental writers of THE COTTAGE GARDENER. It gives them unjustifiable trouble and expense. All communications should be addressed "To the Editor of the Cottage Gardener, 2, Amen Corner, Paternoster Row, London."

PROTECTING MATERIAL.—Our coadjutor, Mr. Fish, writes to us thus:—"What is the best and cheapest material for protecting fruit-trees? I mean in the way of cloth or canvass. I have read our friend Mr. Errington's statements with great gusto; I can manage to retard without such means, but not so well as if I had a cloth, which could be serviceable for keeping off sun and cold too, and the removing of which would give us sun when we liked. I have had several private applications this very week, and I cannot answer them satisfactorily, because I cannot tell the exact price, and no advertisement seems to supply it. A stout, cheap material, about 3d. per yard, is what is wanted. I saw some with a neighbour that cost about 8d., nearly two yards wide, very strong; but he is gone from home, and I cannot, therefore, just now say who is the seller. I am sure that in these times, a cheap, stout cloth or canvass might be made for something like 3d. per square yard; and if so, or cheaper, I am sure that all other modes (branches, nets, and bunting) would soon be at a discount. By merely using it in time, we may retard as we please, and when the blossom is fairly open, we can give full sunlight just in those hours most suitable. If you can do anything in this matter you will confer a favour on many of your readers, and if our manufacturers can meet our case, we need be under no more obligations to the Autocrat of all the Russias, for littery, and expensive, and ineffectual mats." We wish we could aid Mr. Fish by pointing out a fabric such as he requires. We wish some of our manufacturing readers would inform us of any that they think would answer the purpose. The demand for a cheap, suitable material would be very large.

CONCRETE WALKS AGAIN (*One who appreciates the Cottage Gardener*).—You have done quite right till you came to the finishing stroke, that you omitted, and after many weeks you tried the last coat, but the bottom is so hard, that "a good watering did not soften it, so as to receive the paint or finishing coat." How could it, after letting it once get settled? The river Amazon might flow over a good concrete walk like yours for a week, and not soften it sufficiently for the purpose; but as concrete will stick to concrete, you can make a little of it now, very thin, and with fine gravel; run this all over the walk as thin as you can lay it, and before it dries colour it with the finest gravel, and roll it next day.

GREENHOUSE LIGHTS (*Ibid*).—Your present light must have three bars only, then your glass would be 10 inches wide, and if the panes are from 20 inches to 30 inches long they will do, or you may have them 40 inches if you prefer it. Use no lap putty for a greenhouse, and Hartley's rough plate is the best glass for you. We shall let you know next week the price of lights per foot.

ROSES FOR A VERANDA (*Subscriber from the beginning*).—None of the roses in your list are fit for your veranda, and most of them are probably not known at all in the rose world of these days, and certainly not as climbing roses. The last you mention is probably the old common China, and *Ranunculiflora* is probably a second-rate evergreen climber with a name something similar, but being associated in the common jumble who can tell what they are? It is disgraceful to any dealer to send out such a list, after the whole family have been admirably registered these dozen years and more. Buy *Jaune Desprez*, *Noisette Lanark*, *Laure Davoust*, *Pourpre de Tyre*, or *Tyrian Purple*, *Crimson Bouraunt*, and one *Felicite Perpetuelle* to bud others on. Let this one be against the middle pillar, to run right and left at the top, and put none but *Gloire de Rosamane* at the bottom, but rather bud dwarf roses on shoots of the climbers.

ROSES AND DAHLIAS (*C. S.*).—We would not adopt the plan on any account, but that is no reason why you should not; and to keep the dahlias dwarfed in pots, as you propose, seems the most rational way.

FUCHSIA CORDIFOLIA (*Senex*).—This is mentioned in the new Supplement of Paxton's Dictionary, and in *The Cottage Gardeners' Dictionary*, just published. It may be bloomed at this season, or it may be brought forward just now, as stated at p. 368. Your plant may shed its bloom from one of several causes—too sudden change of temperature, want of water, or deficient drainage, and consequent excess of stagnant water. The natural season for *Fuchsia cordifolia* to be in bloom is July or August; yet these good-natured plants may be flowered at any season of

the year. All the fuchsias will bear any amount of moist heat, from 45° or 55° at night, up to 75° or 85° by day. We have had the most perfect specimens of *F. splendens*, which is much allied to the *cordifolia*, by the 10th of March in full bloom, grown in the common cucumber-pit with that fruit. It was placed there about the middle of January. The roots were examined to see that these were all right, and if a larger pot had been required it would have been given, minding good drainage, and not a very large shift. We never found old plants of fuchsias like their roots cut away much at shifting times. It is best to give them larger pots. Some favourite kinds of fuchsias that we keep year after year, are cut in to a single stem, or cut right down; at any rate, they are finally pruned at the time we want to store them away in October, November, or December, as the case may be. By doing this they take up but little room, and may be often placed alternately upon some of the back shelves between the leafy plants, such as the pelargoniums.

BUDDING KNIVES (X. X.).—We have received all ours from Mr. Turner, Parkwood Springs, Neepsend, Sheffield. He is not too "mighty" to refuse answering letters. Write again.

CALCEOLARIAS (E. L.).—Mr. Fish gives all the information you require, we think, in our Number 169, published last November.

VARIOUS QUERIES (A Well-wisher).—"Enlleher's Synopsis" has not been translated into English, but it is the basis of Lindley's "Vegetable Kingdom." Goethe's "Metamorphoses" has not appeared in an English dress. *Cantua dependens* and *C. barbulata* are the same plant. Mr. Weaver has promised to go on with "the good old-fashioned hardy border plants." We do not know of a stud book, or pedigree, of *geraniums*; Mr. Heaton could give as much information on the point as any one. The *Principles of Gardening* would suit you. Mr. Bohn has the remnant of the edition.

STRAUTHOPTERIS (E. Copland).—The derivation in *The Cottage Gardeners' Dictionary* is correct. The name alludes to the fronds of the fern resembling in form the plumes of the ostrich. If you refer to Parkhurst's Greek Lexicon (*Struthion*), you will find that the same Greek word is used for the ostrich and the sparrow.

SIZES OF BOILERS (W. R. W.).—The size of a boiler has nothing to do with its heating power, but the amount of its surface exposed to the fire. If you have two square feet exposed to the fire, it will be enough to warm your room.

PEAT SOIL (W. T. P.).—When we said at page 376, that "every ten parts of the soil contained three parts of vegetable matter," we spoke of it disparagingly as a soil to be employed as *peat*; for general purposes, as an enricher of the kitchen-garden, &c., the more vegetable matter the better. The best peat soil is composed of about three parts siliceous sand, and one part vegetable fibres. A few drops of water in which gall-nuts have been boiled, if put into the drainage water, will strike it black if it contains iron in solution. Do not send us any samples, we never undertake the analysis of a soil for less than two guineas. Sow your *Mignonette* now in pots, to turn out into the open air, without disturbance, at the end of April. Sow *Lupinus nanus* for your edging immediately. By a north wall is meant that side of it that faces the north.

POLISH FOWLS (A Subscriber from the very first).—The golden-spangled and black varieties are equally prolific and equally hardy, so you may suit your own taste. Your other letter we suppose was not received.

COCHIN-CHINA FOWLS (Evesham).—If the eggs are fresh they do not require a longer time for hatching than those of other fowls, but instances in all occur of a day or two longer being required for incubation. The first number of the work you mention is now published, but we have not seen it.

FRUIT BORDER (W. Cork).—If we had one that could be only three feet wide, and on a steep declivity, we should make it three feet deep, and this, with extra space allowed between the two trees, would give sufficient pasturage for their roots.

NUTT'S CELERY (Ignoramus).—If we required any of the seed we should have enclosed twelve postage stamps to "Mr. John Nutt, St. John's Church, Park, Sheffield," and ask him to return the value in seed. Do not remove the dressing from your *Asparagus beds*, but fork it in lightly immediately. The *Double Dwarf Sunflower* does not produce seed. For next year's flowering do not sow the plants you mention until next September. The *Asters* should be sown in pots in a gentle hot-bed without any delay.

GERANIUMS AND DAHLIAS (Whittington).—You will find what you ask for at pp. 312 and 150 of the present volume.

EARLY PROLIFIC RHUBARB.—We were in error at p. 347. The raiser of it is Mr. E. Randall, Market Gardener, Brixton.

BOOKS ON BEES (J. B.).—They are all excellent, and we have them all, but really are unable to say which is best. They vary in price from 4s. to 5s. each. *Melons* can be grown in large pots, and trained along the sides of a cucumber frame. Plunge the pots in the soil of the bed.

ORCHARD HOUSES (G. S. B.).—We can state positively that the fruit grown in these, though not quite equal to the same grown on the open walls, is far superior to any that is forced. Orchard houses are more for shelter than for forcing, and permit more free admission of air, even removing the sashes, which secures more colour and flavour in the fruit.

NEWLY-PLANTED FRUIT-TREES (A Subscriber).—We know of no method whereby these "can be made to bear fruit soon." All that you can do is to mulch over their roots, and by other careful cultivation, to take care that they are not checked, so as to come into bearing *later* than is absolutely needed. *Abutilon striatum* thrives against a south wall in Hampshire, but we do not think it would survive the winter on a lawn. You cannot get rid of the worm-casts. The only way to check their production is to have your lawn soaked occasionally with lime-water.

NAMES OF PLANTS (J. H.).—1. *Hydrangea quercifolia*. 2. *Scilla precox*. 3. *Scilla bifolia*. (*An Original Subscriber*). The plant which has sprung up among your orchids we believe to be *Pettiveria alliacea*. It is common in the savannahs and woods of the West Indies.

CALENDAR FOR APRIL.

ORCHID HOUSE.

AIR.—The days are now considerably longer, and the sun has more power, consequently more air will be required to keep the heat moderate. **BASKETS**, continue to renew, if not finished last month; dip them in tepid water once a week; put in baskets plants to ornament the house, such as *Backhousanthus*, *Archimedes*, *Hoya bella*, *Agalya staminea*, and any other drooping freely-flowering plants. **BLOCKS**, syringe daily. **DENDROBIUMS**, and other plants in flower, remove into a cooler house; they will then last much longer in flower, but as soon as the bloom is over, return them into the warm house to finish their annual growth. **HEAT.**—As the plants will now be growing freely, they require the maximum of heat; in the Indian house, 75° to 90° by day, 65° to 70° by night; the Mexican house should be 10° lower. **INSECTS** will now multiply rapidly; use every means to extirpate them, and prevent their increase. **PORTING**, continue to all such as require it; the grand rule is to pot orchids as soon as new growths are apparent. **STRAWERS** freely in dull weather in the mornings only, but during sunny weather, syringe in the evenings also, shutting up the houses close previously to syringing; a moist growing atmosphere will be the consequence. **WATER.**—As the growths advance, increase the quantity of water at the root; dash it freely upon the platforms, walks, and walls daily, to keep up a large amount of atmospheric moisture. T. APPLEY.

PLANT STOVE.

ACHIMENES, re-pot and divide, if required, the first potted batch; specimens may now be made, by placing several plants in a large shallow pot in leaf mould, chopped sphagnum and turfy loam. **ACANTHATUS**, pot and train to a globular trellis; these make fine showy plants. **AIR**, give freely on all favourable occasions. **AMARYLLISES**, pot and plunge in a bark-bed in a pit, to start them into flower and growth. **BARK**, renew, by sifting the old bark, removing the fine particles that pass through the sieve, keeping the rough in the pit, and adding sufficient fresh bark to raise it a little higher than the level; do not plunge the plants till the heat is moderated. **CLIMBERS**, dress, tie, and train neatly. **HEAT.**—Keep up a brisk heat by day, but more moderate during the night. **IXORAS**, attend to specimens of, and tie them out so as to form dense handsome bushes. **MOISTURE**, give to the air of the house by dashing water about upon the floors, walls, and hot-water pipes. **PORTING**, general; finish the first early in the month. **RED SPIDERS**, and all other insects, diligently destroy; wash the floors or pipes with water and sulphur mixed together; lay it on with a whitewash brush. **WATER**, give abundance of to growing plants; keep every part *clean* and sweet, all decaying leaves remove, and syringe the leaves of the plants daily, especially as a days bright sunshine. T. APPLEY.

FLORISTS' FLOWERS.

AURICULAS and **POLYANTHUSES** will now be advancing fast into bloom; shade from bright sun, and shelter from heavy rains. **CARNATIONS** and **PICOTEES** finish potting; shelter from severe weather. **CHRYSANTHEMUMS**, pot off cuttings put in last month; put in more cuttings, b., keep them in close frames till fresh rooted. **CINERARIAS** coming into flower remove into the greenhouse; young plants re-pot; smoke frequently to destroy green-fly. **CALCEOLARIAS** advance a stage by re-potting; smoke these also; frequently the green-fly is their grand enemy. **DAHLIAS**, pot off cuttings; some that are scarce may yet have cuttings of put in; give plenty of *slugs*; growing plants; old roots plant in borders towards the end of the month. **FUCHSIAS**, continue to increase by cuttings, if required; specimens of *fermas* by re-potting twice during the month; re-pot old plants; shake off a large portion of the old soil, and pot them in the same sized pots. **HOLLYHOCKS**, finish planting, b.; mulch with short litter; sow seed in shallow pans in a gentle heat, or sow in open borders, or nursery beds. **MIMULUSES**, divide, and re-pot in light rich compost. **PANSIES** may yet be planted in beds; stir the surface of the soil of the beds planted last month. **PEAS**, cover bed with a thin mulching of very rotten dung, stirring the soil previously; sow seed of either in the open border, or in shallow pans. **RANUNCULUSES**; if the soil on the surface has become hard, stir it gently, breaking the clods with the fingers; keep a good look out for *slugs*, if they abound give a good watering with lime water. **TULIPS**; be very particular, and keep them well sheltered from late spring frosts, but expose them to all the favourable influences of mild rain, and the warm beams of the spring sun. **WEEDS**, never allow to advance beyond the seed-leaf. T. APPLEY.

FLOWER GARDEN.

ANNUALS (Tender), prick out those sown in February and March into a hotbed; water gently but often; sow in hotbed; (Hardy) may be sown in borders, &c., to remain; thin those advancing. **AURICULAS** in bloom, shelter. (See **HYACINTHS**.) Supply with water often; those for seed, plunge pots in a sheltered border, where they can have sun until 11 o'clock; plant offsets; propagate by slips; seedlings shade during mid-day. **AURICULAS** done flowering, place out of doors, and separate offsets. Box edgings may be made, and old taken up, slipped, and replanted; clip box edgings. **BIRNALS**, finish sowing, b.; plant out those sown last spring. **BULBS**, in water-glasses, done flowering, plant in ground after cutting down stalks, but not leaves. **CARNATIONS**, in pots, give liquid manure every third time, very weak, and water often; stir the earth; sow, e.; plant into borders, b. **CLIMBING** plants, train and regulate. **LAYER RHODODENDRONS** and hardy **AZALEAS**. **DAHLIAS**, plant to remain, b.; or in pots, to forward in a frame until May. Dress the borders, &c., indefatigably. **FRAMES**, raise, by supporters at the bottom, as the plants within grow tall. **GRASS**, mow once a week, and rot oftener; trim edges; dress with earth if poor; and sow seeds, especially white and small yellow **CLOVER**. **GRAVEL**, turn and lay afresh in dry weather; roll after rainy weather often. **HOBIING** and **RAKING** walks give up, and lay them down in concrete. **HYACINTHS**, shelter from sun by an awning or matting over the beds, from nine to four; give the same shelter in bad weather day and night; cut flower-

stalks as they cease blooming, and take special care of leaves. INSECTS, destroy with tobacco smoke, or hellebore powder, or dusting of Scotch snuff. MICROTHUS, sow in any warm border. MULCH, put round trees newly planted. PINKS, sow. POLYANTHUSES, sow; plant out and propagate by offsets, b.; last year's seedlings now in bloom, mark best for propagating. POTTED PLANTS, give fresh earth to, if not done last month; shift into larger; water freely. PERENNIALS, those sown last spring may still be planted, and propagated by offsets; finish sowing. STICKS are required to blooming plants. TULIPS, shelter from sun and wet; take off pods to strengthen bulbs. WATERING is now required more frequently, yet moderately; give it early in the morning. BANANULUS, water freely, and press the earth very hard between the rows. ROSES, thin buds where very abundant; watch for grubs in the buds, and crush them; make cuttings of *Gloire de Rosamond* to bed next year. TOBACCO WATER, use to destroy the aphides, by dipping the shoots in it where the insects are. Prepare for a large stock of common CAPSICUMS to supersede tobacco for killing insects. Take stock of your BEDDING STUFF, b.; and bring up arrears, if any; keep all such rather dry, and insure to cold in time. D. BRATON.

FRUIT FORCING.

BOTTOM-HEAT, renew; do not exceed 85° on any occasion. CUCUMBERS in houses, secure a very moist air to; in frames, frequently renew linings; stop frequently. CAPSICUMS and CHILIES, pot off, and forward. CHERRIES, keep a drier air, and the most liberal ventilation. FIGS, be cautious with. FIGS; stop, when five or six eyes long, the young shoots; see that the root has a permanency of moisture. FLOORS, water frequently. GRAPES; as they colour, increase the dryness of the air and ventilate freely; Grapes ripening, keep a drier air, with free ventilation. INSECTS, promote a constant war with. KIDNEY BEANS, water with liquid manure as soon as in blossom; pot more. MELONS; frequently renew linings; stop a joint or two beyond fruit; keep down late laterals, and beware of insects. PINKS; finish spring shifting and arrangements; early fruiters apply liquid manure to. PEACHES, disbud slowly. ROOT MOISTURE, attend to. SPRINGING, practice occasionally with all but ripening fruit. SHADING, apply where perspiration is too severe. STRAWBERRIES, water freely with liquid manure; keep down runners. TOMATOES, get forward, and harden off. THERMOMETER, watch carefully; beware of extreme night heat. VINES, disbud, stop, and thin berries; give air early. WATERING, perform carefully and regularly. VENTILATE more liberally as heat increases. Plant house VINES. R. ERRINGTON.

FRUIT GARDEN.

APRICOTS, protect, and destroy the red-bar moth eggs. APPLES and other fruit-trees may be planted, though full late. BLOSSOMS of wall-fruit, protect and retard. BUNDED (Trees), last summer, cleanse if foul; also head back the stocks. CHERRIES may be planted. DISBUD wall-trees and trained espaliers of superfluous buds, in a progressive way. FORCING fruits in hothouse, attend to, on similar principles. GRAFTING (late kinds of Apples, Pears, and Plums) may be done still, b. (GRAFTS, lately inserted, see that the clay is firm, and rub off shoots below the scion. HEADING DOWN wall and espalier trees, finish, b., if not done last month. INSECTS, search for and destroy. LIME (early in the morning) dust over the leaves of trees affected by caterpillars. MULCH over the roots of newly-planted trees, to keep in moisture. PEACHES may be planted. PEARS may yet be planted. PLANTING in general may yet be tried, to prevent a season being lost; much care must be taken. PLUMS may be planted. PROPAGATING by layers, cuttings, suckers, and seed, finish, b. PRUNING, finish, b.; stop young shoots if too luxuriant. STRAKE TREES newly planted. STRAWBERRIES, trim away all decaying leaves; remove runners from, as they appear, and top-dress; water in dry weather those in bloom; plant *Alpines*. VINES, propagate by layers and cuttings, b.; summer dress; in vineyard stake and hoe frequently; old borders manure. WALL-FRUIT, thin when ready. WASPS, destroy; every one now killed prevents a nest. WATER abundantly freshly-planted trees.

FIG-TREES may have their winter covering partially removed at the beginning of this month, and entirely by the commencement of May; and they may then be pruned and trained. Newly GRAFTED and newly PLANTED TREES are benefited by being sprinkled by the water engine during dry weather.

Watch for the CATERPILLAR on the gooseberry bushes. Observe the directions about PEACHES in THE COTTAGE GARDENER, and use the sulphur mixture; also the tobacco water when the trees are fairly done blossoming. Watch the development of the AMERICAN BLIGHT, and use the brush. Apply soft-soap water to the stems of PEAR-TREES infested with the SCALE. Top-dress RASPBERRIES, also all BUSH FRUIT, if requisite. Remove all SUCKERS from filberts; also from all bush fruit, wall-trees, espaliers, &c. Let all FRUIT BORDERS be dressed and edged as a finish to the garden, taking care to make sound walks. R. ERRINGTON.

GREENHOUSE.

AIR, admit freely in mild weather; give sparingly when east winds prevail, and then merely by the top sashes, to avoid cold draughts; shut up early in the afternoon, and if sunny, sprinkle the plants from a fine syringe when it is desirable to encourage growth; plants making their growth should, therefore, if possible, be kept apart from those in bloom. AZALEAS coming into, and in flower, water freely; those to be retarded remove to a north aspect, under glass or even an opaque roof; a temporary protection by mats, canvass, or oiled cloth will answer admirably. BULBS, introduce. CAMELLIAS, water freely when in flower; those done flowering keep close, to encourage growth, and shortly afterwards repot if necessary. CALCOLARIAS, CINERARIAS, PRIMROSES, CYTISUS, &c., assist with manure water, weak, but given often. CACTUS, the late kinds water at the roots, after swelling the stems by syringing. CONSERVATIVE-WALL PLANTS prune, train, and protect, more to keep off the sun at first, than the cold. CUTTINGS, insert; place in hotbed or shady place according to kinds. CLIMBERS, regulate. EPACRISSES and HEATHS done flowering, cut back, and also any other straggling plants, and keep them by themselves, so as to be close and warm, to encourage them to

break freely; those in, and coming into flower, keep in the airiest part. For winter blooming of the reddish-tinted kinds of Epacris, none exceeds the *impressa*; *Hyacinthiflora* has much larger flowers, but the colour is duller; do not be afraid to cut back such plants freely; and if you can give them a closer atmosphere and 10° higher temperature than the greenhouse, it will cause them to break better. FUCHSIAS, water the forward ones freely; fumigate with tobacco at the first appearance of fly. GERANIUMS, train the first, encourage the second, and stop, pot, and propagate for autumn supply. GESNERA, especially Zebrina, and Gloxiata, various varieties, start in a hotbed; the roots may be kept sandy during winter, if dry, in a temperature of from 40° to 45°. This rule applies to the whole of the Achimenes, and most plants with scaly and bulbous tubers. Those who have pits and frames, and no greenhouse, may manage them nicely by packing them in a kitchen cupboard. Few things answer better for window plants in summer and autumn. HEATHS, in bloom and growing, keep in the coolest and airiest part of the greenhouse, and if the sun shines strong, defend the pots by shading or double pots; the *Hores* and *Chorozema* tribes will require similar care, and then, with good drainage and plenty of water, there will be no danger. Prepare for general POTTING by getting soil, pots, &c., in good order, but do not let a plant wait for a time when it wants attention. PROPAGATE by seed, roots, cuttings, inarching, and grafting; young plants thus get strong before winter. Sow SEEDS; beware of burying the smaller ones; the pots should be well watered previously, and when settled, the seeds sown, slightly sprinkled with a little sand, pressed down, and a square of glass or a piece of paper put over the pot; for these, as well as striking cuttings of tender plants, inarching, and grafting, a sweet hotbed would now be desirable. SEEDLINGS, remove as soon as possible from the seed-pans, and prick them out singly, especially if thick. Sow balsams, cockscombs, thunbergias, &c. For the various Achimenes, and introduce tubers for a succession. Remove decayed LEAVES. Stir and loosen the surface soil. SUCULENTS of all kinds water more freely. WATER for all plants will now be required oftener. MANURE-WATER may now be given more frequently to Pelargoniums that have set their flower-buds, to all plants where vigorous growth is required in pots, and in all cases of plants for vases, beds, &c., where it is desirable they should be as large as possible by the middle of May. VINES on rafters, train. STRAWBERRIES, set in; even a few on a shelf is a great luxury, and where the vine is scarcely forced, where greenhouse temperature is merely maintained, with a rise from sun heat during the day, the fruit may be obtained a month earlier than in the open air; keep the plants rather dry until the flower trusses show themselves boldly, then water freely. R. FISH.

KITCHEN GARDEN.

Let the head and the hands work together; be on the alert to any sowings that ought to have been performed last month. ALEXANDERS, sow, b. ANGELICA, sow, or plant out autumn sown. ARTICHOKEs, plant and dress off. ASPARAGUS, sow or plant; dress off beds, b.; attend that in forcing, water with liquid manure water once a week. BALM, plant. BASIL, sow main crop on gentle hotbed. BEANS, plant in succession; attend to earth-stirring the growing crops. BEET, of either kind, sow, m. BROCCOLIS, sow, and leave for seed. BROCOLI, sow main crops, m.; attend to pricking out any early sown, and save for seed. BORAGE, sow, and earth-stir autumn sown. BURNET, plant or sow. CABBAGES, sow, plant, or prick out, and earth-stir often. CAPSICUMS, sow in hotbed, or prick out three plants in each pot, while in the seed-leaf, and forward them in hotbed. CARDOONS, sow, c. CARRAWAY, sow. CARROTS, sow main crops, m.; attend to thinning early frame or other crops, also to watering in dry weather; this, and frequent earth-stirring, will forward their growth much. CAULIFLOWER, sow, prick, or plant out; attend to earthing-up the hand-glass crops, and assist them with soakings of manure water. CELERY, sow for late crops, m.; and attend to pricking or planting out early sown; save for seed. CHAMOMILE, plant. CHIVES, plant. CHERVIL, sow; save for seed. COLEWORTS, plant. CLARY, sow. CRESS (American), sow in succession. CUCUMBERS, sow for hand-glass and other crops; ridge out and attend to those in bearing, as to thinning-out and top-dressing, or earthing-up. DILL, sow or plant. DUNG for hotbeds, prepare. EARTH-STIRRING, particularly attend to in dry weather. FENNEL, old roots divide, and plant or sow. GARLIC, plant, if not done, b. HORSERADISH, plant without delay. HOTBEDS for all purposes, attend to. HYSSOP, sow, or plant out old roots. JERUSALEM ARTICHOKEs, plant without delay. KALE (SEA), sow, or plant, b.; carefully fork over old beds. KIDNEY BEANS (DWARF), sow, b.; where hand-glasses are at command; if not, sow, c.; and *Scarlet Runners*, c. LAVENDER, plant. LEEKS, sow, b. LETTUCES, sow in succession once a fortnight, and plant out; earth-stir among often. MARIGOLD, sow. MARJORAM (Sweet), sow main crop on gentle hotbed; (*Common Garden*), plant. MELONS, sow in succession; pot off; ridge out; attend to topping and thinning-out, weekly, the early crops. MUSTARD AND CRESS, sow in succession, where required. MUSHROOM BEDS, make, and attend to. NASTURTIUMS, sow. ONIONS, sow main crop, b., if not done before. UNDERGROUND or POTATO ONION, plant without delay, also the TREE ONION. PARSLEY, sow of either kind; leave for seed. PARSNIPS, sow without delay. PEAS, sow in succession; attend to sticking, &c.; let them be well basined up before sticking on light soils to aid the watering. PENNY ROYAL, plant in a cool situation. POTATOES in frames, attend to. RADISHES, sow in succession; attend to thinning young crops. RAPE, sow. RHUBARB, sow or plant; bring forward by inverting pots or tubs over old crowns. RUE, plant. SAVOY, sow. SALSIFY, sow main crop, c. SCOREONKRA and SKIRRETS, sow, c. SHALLOTS, finish planting, b. SORRELS, plant. SPINACH, sow once a fortnight; thin out; and leave for seed. TANSY and TARRAGON, plant. TOMATOES, sow in hotbed, and prick out in pots, and forward in hotbed. THYME, divide old roots, and plant out. TURNIPS, sow, b. and c.; leave for seed. VEGETABLE MARROW, sow in hotbed. WORMWOOD, plant. T. WEAVER.

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